The Phi Delta Kappan

VOLUME XXXIII, NO. 2 OCTOBER, 1951

Education Is a Force!

The Potential of Education Is Greater Than That of the Atomic Bomb, *Roy E. Larsen* 65
An American Teacher, A Radio Documentary, *Henry A. Singer* . . 67
The Human Chain Reaction, *George D. Stoddard* 72
Educational Leadership in the Atomic Age, *John A. Sexson* . . . 76
A Basis for Leadership, *Benson Ford* 80
Teaching: A First Line of Defense, *F. E. Engleman* 82
Literacy as a Base for World Peace, *Frank C. Laubach* 84
Whose Fundamentals? *Harold Benjamin* 87
One Educational World, *Chris A. De Young* 90
The Educational Use of Communication Tools, *Philip G. Johnson* . 94
Atomic Age Education in Science, *James G. Harlow* 96
Science Teaching and Education Aims Today, *Robert H. Carleton* . 100
Education for Human Rights in an Atomic Age, *John W. Taylor and Betty Morgan* 105
"The Proper Study of Man," *Gordon Clay Godbey* 109
Character in the Atomic Age, *Hanor A. Webb* 110

A Journal for the Promotion of Research, Service, and Leadership in Education

THE PHI DELTA KAPPAN

Official Organ of Phi Delta Kappa, Professional Fraternity for Men in Education

"For the promotion of free public education in a democracy, through a continuing interpretation of the ideals of research, service, and leadership"

PHI DELTA KAPPA, 2034 RIDGE ROAD, HOMEWOOD, ILLINOIS
PAUL M. COOK, *Executive Secretary*

PHI DELTA KAPPA
BOARD OF DIRECTORS AND EDITORIAL BOARD

GEORGE C. KYTE, *President*
University of California, Berkeley, California

DOUGLAS G. GRAFFLIN, *First Vice President*
Chappaqua Public Schools, Chappaqua, New York

FLOYD T. GOODIER, *Second Vice President*
603 Broadway, Normal, Illinois

GEORGE R. POWELL, *Recording Secretary*
Southeast High School, Kansas City, Missouri

EMERY STOOPS, *Comptroller*
Los Angeles County Schools, Los Angeles, California

ROLFE LANIER HUNT, *Editor-in-Chief*
PAUL M. COOK, *Business Manager*
2034 Ridge Road, Homewood, Illinois

THE PHI DELTA KAPPAN is published monthly, September to May, inclusive, at 1201-05 Bluff Street, Fulton, Missouri. Entered as second-class matter at the post office at Fulton, Missouri, under the Act of August 24, 1912. Printed by The Ovid Bell Press, Inc., Fulton, Missouri.

THE PHI DELTA KAPPAN is published by Phi Delta Kappa, Incorporated. It is mailed to all members of the fraternity in good standing according to its by-laws. It is available to others at a subscription price of $3.00 per year. Single copies may be had at 50 cents.

Official statements of Phi Delta Kappa are marked as such. Unless thus indicated, articles in THE PHI DELTA KAPPAN represent personal viewpoints of the writers.

Articles in this magazine are listed in *Education Index*, published by the H. W. Wilson Company, New York.

Copyright, 1951, by Phi Delta Kappa, Inc.

EDUCATIONAL PRESS ASSOCIATION OF AMERICA

Editorial Comment

Education is a force. Teacher, respect the power in your hands!

Education is a force. This thesis, suggested by the Editorial Board, has been developed in this issue according to plans made with the help of Arthur H. Compton, L. D. Haskew, John A. Sexson, and Hanor A. Webb. The Editor gratefully acknowledges their assistance.

Since Rutherford split the atom a half-century ago to start the development of nuclear fission in the physical sciences, education too has developed as a science. How people learn, how people learn to get along with each other—we need such knowledge!

The advances to come in education and the other social sciences are as important to the happiness of man as are any foreseeable advances in the physical sciences. The support of education and support of educational research are justified in terms of the desires of the people in the atomic age.

We hope some of the facts and ideas in this issue will help you draw support to education comparable to the seven billion dollars the United States will have spent by the end of the year in plants and operations to develop atomic energy.
—R.L.H.

The Potential of Education Is Greater Than That of the Atomic Bomb

By ROY E. LARSEN*

GREAT TEACHERS like Aristotle and Abelard have always exerted a more lasting and beneficent influence on the course of history than mighty conquerors like Alexander the Great or Genghis Khan. Unfortunately, the votaries of violence usually receive more public recognition during their own lifetime than the molders of the minds of men. Most thirteenth-century Europeans would be amazed to learn that today the names of St. Thomas Aquinas and Roger Bacon are familiar to millions while the names of the warrior-princes of the age are almost completely forgotten.

Today, the latest atomic explosion is celebrated by headlines while the achievements of the men who teach our children how to think are relegated to inside pages or completely ignored. Such journalistic disproportion does not alter this fact: far greater than the noisy potential of the atomic bomb is education's promise as it will be realized in the ability of these same children to harness atomic energy for peaceful uses, to develop understanding of human relations, to adopt methods which will smooth fluctuations in the business cycle—in short, to make our life altogether more meaningful and productive.

Just as the bomb is only one manifestation of atomic energy, so our discovery and development of atomic energy is only one manifestation of the achievements of the educational process. Education's potential is limited not to the field of atomic energy, or even to science as a whole, but only by the imagination and capacity of the human mind.

The radioactivity of an exploded atomic bomb may linger for days, even weeks, but it cannot equal the never-ending radioactivity that an inspiring teacher emits to the impressionable minds and characters of his pupils—a radioactivity that does not destroy, but builds.

"Our teachers do most for our society and are recognized least," says Bernard Baruch. "They have molded the character and conscience of the nation and have implanted our people with ethics, decency, character and the will to do the very best." Here are intangible but real spiritual and moral values that uranium and all its magical derivatives can never produce.

With education, we can accomplish almost anything. Without it, we are sterile morally, spiritually, economically and socially.

"But this is a time of crisis," you may say. "Doesn't our future security depend on the atomic bomb rather than on education?" Top ranking military leaders, like General Bradley and General Eisenhower, give these answers:

"The key to our future security," General Bradley declares, "lies in our schools."

General Eisenhower believes that "to neglect our school system would be more disastrous to all our freedoms then the most formidable armed assault."

The education of our young people takes on increasing importance precisely because the present world emergency is in large part a struggle of ideas and ideals—a moral and spiritual struggle that will be won finally by educational progress, not atomic bombs. Our survival as a free people requires citizens whose understanding of our ideas and ideals is clear, and whose faith and courage to work and sacrifice for them is steadfast.

We know we are faced with a long-term period of tension. During this critical period it is all-important that we step up our educational as well as our armed strength. If by threats and

★ *Roy E. Larsen is president of* Time, *Inc., and chairman of the National Citizens Commission for the Public Schools, 2 West 45th Street, New York 19, New York.*

* Roy E. Larsen, president of *Time* Inc., is chairman of the two-year-old National Citizens Commission for the Public Schools. A few of Mr. Larsen's many civic activities are as vice president and trustee of the New York Public Library, chairman of the Council of the United Hospital Fund of New York, and director of the Greater New York Fund.

subversion, our enemies were able to provoke us into weakening our school system, the bulwark of our free society, they would win a major victory without firing a single shot.

It will, of course, be necessary to adjust some of our educational plans to the immediate requirements of mobilization. But it would be foolhardy to underestimate the promise of education and to deny our schools the improvements and support they need to actualize education's almost limitless potential. While we develop the armed might with which to defend ourselves from immediate physical attack, we must see that our educational system has the best possible environment in which to grow in effectiveness.

Providing this environment is a job for all our citizenry: teachers, mechanics, doctors, salesmen, housewives. The responsible and conscientious layman knows that the potential of education is boundless and is therefore working with increasing determination for better schools in his own community. Through greater interest on the part of all citizens we can give our children the very finest in educational opportunities. By providing the means with which to stimulate and nourish their intelligence and imagination we can continue as a nation to grow in spirit as well as in physical well-being.*

* The National Citizens Commission for the Public Schools (2 West 45th Street, New York City) will gladly supply specific suggestions on how to organize a citizens' school committee in your community. Case studies of successful local school campaigns and many other useful aids for the better schools program are also available.

Soon to be available from local Navy Recruiting Stations is a 32-page pamphlet, "Stay in School." This is in line with the established policy of all the branches of the armed services which favor keeping young people in school as long as possible. "A better educated soldier or air man is a better military man; more useful to his country, more useful to himself," says Major General T. J. Hanley, Jr., Chief of the Military Personnel Procurement Service Division.

"Schooling assures a good soldier and airman, and a competent officer, a better chance to go ahead. It helps a man to win promotions, more pay, and advancement."

Says an earlier naval pamphlet, "You will serve yourself and your country better by obtaining the maximum of educational background before launching upon your life work."

Change!

Every change in technology means a change of equal magnitude in our social world. We must be prepared for changes of equal scope in the social order as those we permit in technology.

Time played on our side, when revolutionary changes came slowly. The pace accelerates today in every technology. Until atomic energy, we never advanced as much as 20 per cent in a generation.

On August 5, 1945, in the twinkling of an eye, we improved 20 million per cent the art of war. A small piece of plutonium is the equivalent of approximately 250 million pounds of TNT, about what we used in World War II. We make changes to match in our basic attitudes, social, economic, political ideals, idealism, or we cease to exist.

The world in which young people are going to live can be a golden age in which there will be no war, a world in which men will have everything they want, literally, physically, here on this earth. In it they can live as long as they want to live. We have moved forward the life expectancy 33 years in the past five years, if what the president of the American Medical Association says is true. Will we do less in the next five? How long will your grandchildren live? What can they have in terms of homes, literature, music, books, pleasure, goods? For the first time in the history of man, we have a chance to build the world in which man may have, so far as physical control is concerned, everything his heart desires.

We have infinite power in our hands. The only question is man's tolerance for change, for social change equal to the physical changes he has engineered. Can we make the necessary changes in our basic social, political, economic thinking to avoid the use of this implement this time as we have used all other implements at all other times?

Peace we must have whether we can or not. The alternative is the end of this earth as a habitable planet.

Your first responsibility as a teacher is to understand a little bit better the essential nature of man, his society, what changes are in front of him in this situation. Then teach your youngsters to be willing to change! Teach adults the same!

—Robert H. Montgomery, Graduate Professor of Economics, University of Texas, Austin, Texas.

A Teacher-Recruitment Radio Documentary:

An American Teacher

By HENRY A. SINGER

SOUND: Noise of children in playground.

MUSIC: THEME HOLD UNDER.

NARRATOR: Listen to them—American children—the voices of yesterday—of tomorrow—of always—the voices of our children—how are they growing up—what are they learning—who are the teachers that are molding their lives.

MUSIC: THEME UP AND OUT.

ANNOUNCER: Today the Radio Guild of the New York State University Teachers College at Fredonia presents an origional documentary written and produced by Dr. Henry Singer entitled—AN AMERICAN TEACHER—the human story behind the life and training of our children's teachers.

SOUND: Children playing.

SOUND: School Bell.

NARRATOR: Ladies and gentlemen do you hear that bell—it is a school bell—but we regret to inform you—there is no school building—the next voice you were to hear was that of a teacher—we regret that the teacher is not here either—

VOICE: Ladies and gentlemen—this is a Crisis in Education!!

NARRATOR: The child being neglected may be your own!!

MUSIC: DRUMS—STACCATO TO CRISCENDO!

SOUND: Rocket firing.

NARRATOR: Hear that—the sound you just heard was the M38 Rocket—U.S. Army—a very potent explosive.

SOUND: EXPLOSION.

NARRATOR: That was the new jelly explosive being used in heavy industrial mining and Hydro Electric Power construction.

SOUND: Atom Bomb.

NARRATOR: That was the sound of the atom explosion mushrooming over Bikini Island—would you care to hear the V-3 Rocket, the H Bomb — Hell Bomb — we've a Barrel full of sound effects—or would you rather hear a sound more powerful than any explosive—a force that if somewhat slow moving—is none the less more potent than all the explosives of history together—LISTEN.

HELEN: Boys and girls, today we are going to talk about people living in other lands—how many of you have heard of a land called China?

NARRATOR: Hold on—what was that—no wizzing, whirling, concussion—no vibrating tubes in your radio receiver—no blasts—let's try it again for sound.

HELEN: Phillip you seem to have a question about China.

PHILLIP: Yes—why do people from China look so—so—different?

HELEN: That's a fine question Phillip—you see, people living in different climates often have a different living condition. They often grow up over a period of many, many years by adjusting to their environment. All human beings are basically the same . . . but the things the ground produces for them to eat . . . the nature of the weather, the land, the water . . . all these things change certain appearances on the outside. Sometimes peoples skin may be a different shade, their eyes, nose or face a different shape—but these are just something on the outside. All human beings have the same types of blood, same bones, eyes, stomachs, hearts. In fact, even though some people may look different on the outside—all of us are more alike than we are different.

NARRATOR: Say did you hear that—that was a teacher—a teacher talking to children about people—other people—different people—if every teacher in the world tonight told their children about other people with such understanding and compassion what might the world be like for our grand-children—could teachers

★ *Henry A. Singer is Professor of Communications, State University of New York, Teachers College, Fredonia, New York. He is a member of Phi Delta Kappa.*

change the world?—is teaching the force more powerful than the atom bomb?

VOICE: All right mister—you've made your point—teaching is a very powerful force. But most of us know that, why all the fuss—

NARRATOR: Because the teachers are not there—this is our crisis in education—more and more children are coming to our schools—the birth rate has been at an all time high. The children are growing up—they are there waiting to be let in—many of the school buildings are old—inadequate—but most of all—the teachers—that force more powerful than the atom is losing its punch. Right here in New York we expect an all time attendance in our elementary schools—but where are the internes . . . the student teachers—preparing to meet those demands.

VOICE: Why any half-way intelligent person should be able to teach kids.

NARRATOR: Hold your adjectives mister—it takes four years to turn out a well informed teacher—five years a trained specialist—intelligence that's one thing—personality—patience—friendliness—those are others. A teacher isn't only well informed but someone who must work with people—day to day—guiding, stimulating, encouraging.

VOICE: Can't anybody learn to teach—

NARRATOR: Mister, I don't know if anybody can teach—maybe not—but I'll tell you one thing, a lot of good teachers have come from a great many different places—take that teacher we heard earlier talking about China.

VOICE: I wouldn't mind. She's real cute—

NARRATOR: Why not, she was going into show business. Star of her high school drama club. Attractive, a good voice, she seemed natural for the theatre.

VOICE: Well, what happened?

NARRATOR: Small, tiny, insignificant details that alter our paths—our lives.

MUSIC: GRADUATION

SOUND: Crowd.

M. GATES: Oh, there you are Helen—I wanted to see you and congratulate you. That was a lovely speech and you did it so well.

HELEN: Thank you, Miss Gates. I'm going to miss high school. It will seem strange not to have our Friday afternoon coffee klotch.

M. GATES: Oh, you'll probably become a very famous actress some day—coffee klotches will seem awfully tame to you.

HELEN: Oh, I don't know—say, I had fun teaching that class in the grade school last week. Thank you for letting me try it out.

M. GATES: The children loved you, Helen—they've been asking for you ever since.

HELEN: It was quite an experience seeing all those eager faces looking up at you—and the questions they asked.

M. GATES: Well, if you ever feel like changing your work—you'd make a wonderful teacher, Helen.

HELEN: That's not a bad thought—you never can tell.

MUSIC: BRIDGE

NARRATOR: Just a chance thought—and yet one year later when Helen visited her home Upstate, she discovered that there was a State Teachers College not three hours away—that tuition was amazingly low—that they had built new modern dormitories and her interest in drama would be more than satisfied in the theatre, radio and speech activities of the college.

VOICE: It looks like we've launched a new career!

NARRATOR: Exhibit B on the road to teaching. Her first week at Teachers College as recorded for history on one of her letters home. She's conveniently left it out on her desk—I'm sure she won't mind if we peek—

SOUND: CROWDED CORRIDORS

HELEN: Class cards, registration, book lists, state forms, activities cards—dear me—I'm getting in pretty bad shape filling out these slick forms—I know it's a bad pun, but I'm in no condition to do much better at this hour. There is more hustle and bustle during registration than a tryout for the Theatre Guild. I've got a lovely room in the new dorm and have a delightful roommate. Her name is Barbara Channing and she seems to specialize in boys—this is an extra curricular activity here and not a subject at school—however, I don't think Barbara knows that yet. The instructors seem quite bright with a stuff-shirt here and there—there's a nice feeling about the school—altogether different than high school—there seems to be a very friendly spirit between students and faculty. There's nothing stuffy or precious and even the Deans and President talk informally and move

quite naturally around as if we all had been in the same town or even the same family a good many years. There's so much to write—about the subjects and teachers I have—the school camp—the first party—

SOUND: CRICKETS

HELEN: But it's late and these characters are storing up their energy for the week-end so I better not interfere with their metabolism—will send some pictures very soon.

As ever,

Helen

P.S. You may send an extra five dollar—odds and ends you know.

MUSIC: UP

VOICE: Say, she's quite a sharp kid—well where do we go from here?

NARRATOR: Why don't we do it like the movies—you know—the man says, "I think I'll become a lawyer." Then the scene fades and the next scene shows him nailing up the diploma.

VOICE: You mean the four years kind of get telescoped in the fade in and out—just like that.

NARRATOR: How can you wrap up four years of English, Psychology, Mathematics, Biology, Geography, Social Studies, Child Development, Teaching Methods, Hygiene, French, Spanish, Speech, Music, Art, Physical Education —and then some—into forty minutes.

VOICE: You mean a teacher has to know all those things just to teach kids?

NARRATOR: Mister—teaching is not only an art—it's a science—today's teachers are among the most informed citizens of the country—and why—because today's children grow up in a rapidly changing, moving, accelerated universe. They want knowledge—understanding of the world around them—a world brought to their attention with all the impact of the newer mass media of communication . . . the radio, press, television, motion pictures, comics—it takes quite a person to keep up with all this—take Social Studies—a teacher must know all the details of American Government how it functions—this involves a range of subjects alone—like the American Court System.

SOUND: TAPE OF SOCIAL STUDIES CLASS IN SESSION.

NARRATOR: And while she's learning all about American Government, a student teacher is learning how to live cooperatively with other people—she is learning by participating in student life—she is applying the facts of democracy to her own life.

SOUND: S.G.A. MEETING.

NARRATOR: There are other phases of student life that makes school days an exciting, wonderful experience—there are those colorful sports events each one of which seems more important than anything else in the world when they're happening—like that Basketball game.

SOUND: BASKETBALL GAME.

NARRATOR: Then there are the many important science courses that help Helen to understand the Physical Universe like this course in Biology.

SOUND: BIOLOGY CLASS.

VOICE: What other kinds of courses does Helen get?

NARRATOR: Probably one of the most practical courses Helen takes has to do with teaching itself—subjects like Methods of Teaching, Educational Materials, Principles of Education—subjects that prepare her for her eventual practice teaching that she will do in her last year. Take this basic course in child development.

SOUND: RECORDING OF CHILD DEVELOPMENT CLASS IN SESSION.

NARRATOR: The variety of Helen's classes reads like the roster of liberal arts—or a world tour.

SOUND: Class reading Spanish.

VOICE: What was that?

NARRATOR: One of several language options Helen has — she chose Spanish because she's interested in South American culture.

SOUND: SPANISH CLASS.

VOICE: What does Helen do besides school—books and an occasional ball game.

NARRATOR: You're not paying attention Mister—she's got her clubs, IRC, Psychology, Mummers, Forensic Congress, Radio Guild, the School Paper, and she has her Friday or Saturday night parties or school dances.

VOICE: All this and socials too?

NARRATOR: Why not—all work and no play is not only dull—but down right unhealthy —and teachers need to be healthy—intellectually, morally and socially.

MUSIC: UP AND UNDER ON BG.

SOUND: SCHOOL DANCE.

PHILLIP: Oh, look Helen here come the boys.

HELEN: There they are.

FRANK: Hi you—

PHIL: You're looking swell.

FRANK: Sorry we couldn't pick you up at the dorm but we were on the Dance Committee.

PHIL: Last minute stuff.

BABS: How's the car?

FRANK: It's fixed—so am I—it cost $12.

PHIL: We're living on borrowed time.

BABS: Let's not waste the music.

PHIL: Do you want to dance, Helen?

HELEN: Sure—

MUSIC: UP AND OUT

NARRATOR: And then there are the trips to the Camp Lodge—a beautiful, huge, rustic lodge located high on a hill in a beautiful countryside. In winter there are the appropriate sports of skiing, skating, tobogganing and thawing out your toes around the fireplace.

MUSIC: GROUP SINGING.

SOUND: FIREPLACE WITH LOG FIRE.

BOB: Who wants to try some more square dancing.

VOICES: Swell—no more—let's go—out.

BABS: (Ad libs) Say, the fire's hot, I'm moving back a little.

MUSIC: SQUARE DANCE. HOLD UNDER —BG.

FRANK: Say Phil—Helen shall we head back to town? I want to stop at Joe's for a hamburger and stuff.

HELEN: In a little while Frank—we want to turn a few more squares—

FRANK: Squares is right. How can you dance that stuff—

PHIL: You don't know what you're missing—

MUSIC: UP AND OUT.

VOICE: This sounds a lot different from schools I've heard of—

NARRATOR: Learning increases when the setting is pleasant—that sounds like a platitude but its educational psychology—here's one of the Psyc teachers, why don't we follow him into his class and listen. . . . SOUND: (Door).

SOUND: CLASSROOM IN EDUCATIONAL PSYCHOLOGY.

NARRATOR: In the course of her training Helen hits a few rough spots just as most of us do from time to time. No one person can hope to meet all of life's problems without some help and guidance—Helen finds herself in a dilemma over her new career—faced with several alternatives she seeks out the counsellor for advice—Helen has made a wise choice in going to the counsellor since many of her friends feel awkward about going—In the end Helen will be able to reach a sounder decision because of it.

SOUND: GRENNELL INTERVIEW.

VOICE: This is beginning to sound like a soap opera.

NARRATOR: Something like Helen faces life—

VOICE: Something like that.

NARRATOR: What you've just heard is called the non-directive technique of therapy—it's based on the theory that the function of a good counsellor is to help the individual see more clearly for themselves their problems as well as their goals and purposes.

VOICE: Now you're getting me in over my head—haven't you another tune in your catalog over there.

NARRATOR: They say music also helps to make things pleasant—we're just in time to attend the music concert with Helen as she mulls over her problem. We better hurry and get a seat before the crowd gets here.

MUSIC: UP AND HOLD.

NARRATOR: A school is more than books, buildings and faculty—it is a way of life—a philosophy—Here there are administrators who follow a new dynamic concept of educational leadership. What does that mean—it means that a school is no better than its leaders—

VOICE: You mean its not the school, its the principal of the thing—

NARRATOR: A bad joke but a good idea—here's what I mean—you can tell a school by the way the administrators work—by the way the faculty and students get along—let's eavesdrop on a student group visiting the President over a current issue.

SOUND: STUDENT AND PRESIDENT.

VOICE: Sounds like democracy is here to stay—

NARRATOR: Check and double check—let's listen to what the Dean has to say about that.

SOUND: Dean.

VOICE: Well, you've covered almost everything—except maybe—health — what provision does the school have for a health program?

NARRATOR: Healthy teachers help to make healthy children, lets see why. . .

SOUND: HEALTH ED CLASS.

BABS: See Helen, isn't it swell, I start my student teaching next week.

HELEN: I'm a little sad—

BABS: Why?

HELEN: It means we'll be leaving soon.

BABS: What are you worrying about, you've got a swell job lined up—

HELEN: Yes—but three and a half years in one place begins to tie you up—

BABS: Not me—I'm looking forward to the job.

RUTH: Hi you girls—what's the plot?

BABS: We're talking about our student teaching assignments next week—

RUTH: Isn't it exciting—I get to go to Jamestown—my old school.

HELEN: Say that's swell.

RUTH: It will be fun going back—some of my old teachers are still there.

BABS: Say Ruth, Helen's got a job lined up already—starting at $2800, isn't that terrific?

RUTH: Gee, that's great Helen—they're coming up from the city to interview us for some jobs downstate.

HELEN: Thy say they have some wonderful schools down there.

SOUND: BELL.

BABS: Well, here goes, I've got to see the Dean about my new schedule, see you later girls—

SOUND: Crowded lobby up—and seque into classroom.

SOUND: HELEN STUDENT TEACHING SESSION.

MUSIC: GRADUATION UP AND UNDER.

SOUND: Crowd hold under.

NARRATOR: And so begins Helen's story, she is wearing her cap and gown—the chapel is crowded with happy parents and eager seniors—this is the moment that culminates books, friends, teachers, lab, subjects, homework, bull sessions, socials, club life, camp week-ends, tryouts, the ballgames,—this is it—we're crossing the T's and dotting the I's—the president's address, the valedictorian—the messages, the presentation of the graduates.

DEAN: In BG—Reading of names. Harry Michaelson, Bernice Mollard, Harold Newman, Virginia Nichols.

NARRATOR: You file up to the stage—

DEAN: Paul Peterson, Ruth Petorski, Helen Phillips—

NARRATOR: Hold that a moment—your name being called—the president about to hand you the sheepskin—in this simple act you have taken your place on the side of service to mankind—you have joined the fraternity of American teachers—

DEAN: John Roberts, Frank Raguso, Josephina Romona—Al Sales, Gertrude Samson—Rose Seborski—(fade).

VOICE: (Echo) A force more powerful than the atom.

HELEN: . . . And so children when you see pictures of Chinese people what are some of the things you will be thinking about? Sally—

SALLY: They only look different because they were born in China but really they're just the same as we are.

HELEN: In what ways?—John.

John: They need food—clothing—a house to live in—they need mothers and fathers.

FRANK: And schools.

HELEN: Yes, Frank.

SALLY: They need to belong to somebody —something.

SOUND: EXPLOSION.

VOICE: An American teacher—a force more powerful than the atom—

MUSIC: UP.

Education Is a Force!

Education is a force. The power of education may properly be compared to the power of the atomic bomb. It may be compared to the atomic bomb in the same way that the power flowing along your electric lines may be compared to lightning. Lightning is powerful. The extravagant display of power in lightning, as in the atomic bomb, catches the eye. But the work of the world is done by the disciplined force.

Education has made possible America's success in two world wars. Know-how to produce, to invent, is based upon achievements in education. Our war potential is based upon the effectiveness of education in the United States.

Education is a force!—R.L.H.

The Human Chain Reaction

By GEORGE D. STODDARD

LONG BEFORE Toynbee, observers had pondered the question of the rise and fall of cultural systems. The answer always swings round to a study of the nature of man. What moves him to the point of emulation? Why, for example, does the city of Paris, presently celebrating its 2,000th anniversary, stir the minds and imaginations of men? A brief note in the UNESCO *Courier* may be helpful:

> Her glory is perhaps that of her monuments and her museums; it is above all that of artists, thinkers and writers. More than monarchs and merchants, it was the leaders of the University of Paris that first made this city a capital. Endowed with no natural defenses, Paris has always been an open city, ready to let in new ideas—and she has grown in proportion to the welcome she has given them.

What is said of this great city can be said of any man who leads others—he grows in proportion to the welcome he gives to new ideas. He need not *accept* ideas that are new and untried; rather it is his business to see that they get tried. Either to accept or to reject them, he needs to apply his own tests. If he looks around, hoping that a sufficient and easy test will come from those eager to advise him, he may at the most become well informed. On the other hand, he may become confused and in the act of resolving conflicts turn to a single source—to a commentator, a reviewer, a politician. Now he is no longer the *Man Thinking* of Emerson but the much baser *Man Thought-for* of Fitzgerald. If he retains some power of rejection and final selection, he may still be wiser than most, but he will not be free as his teachers hoped he would be free and he will start no chain reactions.

Well, then, how can one person legitimately affect another, and one group another group? We who are teachers must attempt an answer to this basic question.

First, let us look at a few ways that are intellectually improper—at least, teachers regard them as pitfalls and are themselves dedicated to a much different order of human relations.

According to such standards:

(1) It is wrong to sell a person ideas or choices that will profit you, but not him. It is bad to keep him in the dark regarding your intentions. Even lobbyists must register and contributions to parties and politicians must be reported. Always we should ask, What are your intentions? Here the teaching profession in America has a good record. A British philosopher, Herbert Spencer, asked the question, What knowledge is of most worth? Ten thousand Americans, alone and in committees of three to twenty-one, have tried to answer. We have *cardinal principles, curriculum guides, monographs, commission reports* and *yearbooks*—all designed to acquaint teacher, pupil and layman with the aims and aspirations of education in a free society. There is some confusion, but nothing is secret.

(2) It is wrong to withhold information, to distort it.

(3) It is wrong to keep a person down, pushing against any attempt on his part to rise above class, family or station.

(4) It is wrong to abandon free enterprise in intellectual and creative activities.

(5) In short, given the precious opportunity to influence another, perhaps to affect the course of his life, it is basically wrong, in the minds of dedicated teachers, so to ensnare child or adult as to render him less capable than before of independent thought and action.

The growing mind must question everything or it will never understand anything. The nervous system is at once a glory and a hazard. It is only partially formed at birth and for a long time thereafter. It is plastic, responding, maturing. Externally applied moulding pressures will deform it as surely as the cloth and wood binding deformed the feet of Chinese women in days gone by. Moreover the nervous system is not a

★ *George D. Stoddard is president, University of Illinois, Urbana, Illinois, and chairman of the U. S. National Commission for UNESCO. He is a member of Phi Delta Kappa.*

single organ that can be damaged without damage to the total structure. All organs are truly a part of the brain and responsive to it. Ruin the art of the brain, which is the art of thinking, and you ruin all; neglect it, for any length of time, and you endanger the golden period of learning and discovering.

Now to the other side of the coin: durable imprints there will be, especially if events are emotionally tinged or an object of practice; the question is, How can we make them good ones?

According to the standards of the teaching profession:

(1) It is good to help a person grow in mind, character and personality.

(2) It is good to free him of fears and anxieties.

(3) It is good to enable him to work effectively and in friendly co-operation with others.

(4) It is good to introduce him to the responsibilities of organized society.

(5) It is good to arouse in him the ability to create and discover.

In short, the purpose of education is not only to gain wisdom, but also to gain freedom. The learner, child or adult, is not a blank page to be written upon. Certainly he is no tape recording system that is expected to give out only what has been received. There is in each person, when we grant him the dignity of being a person, an organizing and re-creating ability that makes him different from all other persons. Of course, he was different to start with. No two persons have the same pattern of genes and prenatal conditions. They start life differently and they tend to diverge. All it takes to start the diverging process is a single new experience given to one and not to the other. From the simplest differentiation may come remarkable differences in the level of aspiration. Thus H. G. Wells, having missed the formal education that would have disciplined and directed his unusual mentality, as a youth had the good fortune to listen to a free lecture by the great Thomas Huxley. Thereafter he was a changed young man. He had found a way to merge scientific interests and literary talent.

Indeed, every person can think of casual words, of ideas thrown out by parent, teacher or friend that have had a remarkable determining significance. As nature throws down genes in prodigal fashion—genes that underlie talents frequently never developed in the individual—so do teachers offer observations, suggestions and evaluations. When the soil is right, we have a chain reaction that is no less effective for the seeming casualness of its beginning.

There is, of course, nothing casual about the relationship of pupil and teacher, for the whole idea is to place the one before the other in a condition of readiness to learn. It is, in fact, easy to get too much acceptance, too great a reliance upon the text. Thus the Nazis, by infecting educational, scientific and religious leaders, found it easy to corrupt the minds of youth. And so it was in Japan: teacher, textbook, law and religion finally were bent in the direction of the preconceived mandates of military aggression. Today, we find in Communist countries a bowing down before the word as if it were law, with elaborate devices to keep out contrary ideas.

The human chain reaction envisaged for free countries is different. It shuns the methods listed above as wrong and moves toward the positive. If it seems less certain of success, the risk is a considered one. Persuasion that acts like a poison is easy and it appears immediately efficacious. In recent times, first the Fascists and Nazis, and now the Communists, like the Medicis five hundred years ago, have found that what appears to be effective cannot be relied upon. One free voice, alive and courageous, endangers the whole cardboard construction.

The Lysenko affair illustrates the weakness of the totalitarian state. The Lysenko biological doctrines taught as dogma by the Communist Party in Moscow are a ludicrous outcome of a party line in the realm of science. What is not so generally known is the beginning of this type of cultural infection early in the schools.

In a 1950 Moscow publication *(Communist Education in the Soviet School)* there is found this statement:

> For the study of biology in the school it is necessary to lead the school to an understanding that the organic world, which constitutes a part of the material world, develops dialectically and to show in accessible forms for the student the reaction of idealist teachings in the sphere of biology. It is necessary to show to students that suitable conditions for the study of scientific biology are created only in our country."

Thus the thick hand of obscurantism descends upon teacher and pupil. The Iron Curtain works both ways and not altogether against the free world. Inner rot may prove to be as dangerous to the Soviet system as do external enemies.

So, we in our democracies accept as a limit to persuasion the free exercise of the mind. We think the Constitution of the United States is good, and we are especially proud of the Bill of Rights. At the same time we are willing to re-examine these great precepts to see what they have meant or could mean in a free society. We do not, however, permit the tyranny that would come if a single leader or a minority faction tried to overcome these carefully hammered-out rules and laws of the people. However negligent in practice we may become, we stick to the goal. Nor do we hide the publication of our defects in practice.

What, then, is left to us in the realm of persuasion? Some illustrations can be found in the programs and projects of UNESCO. There is one freedom that cannot be given up—it is the freedom to remain free. In another context it may be called the freedom to learn, to speak, to criticize, to co-operate, to work, to join and to move about. These are all simply facets of the free man whose influence upon others must be exercised in agreed upon ways. Duties and responsibilities will supply the necessary antibodies to license. The mutuality of the cencept of freedom itself sets up limits that are carried down as customs, habits and laws.

For example, in the United States we believe that every child should have the freedom to become literate. We believe in basic or fundamental education. We deny that any person has the right to deprive the child of such benefits; were we to grant such a "right" to a recalcitrant parent or clan, we would sacrifice the promise of childhood and youth. Although we appear to be intuitive about this, the concept is rather new in the world, as indeed it is in the United States. It is for this reason that UNESCO is placing emphasis upon basic education. It is defined not simply as the ability to read and write but also the ability to apply these intellectual tools in science and technology, in the social sciences, arts and humanities. Fundamental education, viewed in this fashion, is the base of a pyramid. Upon it will be erected a new understanding in agriculture, engineering and medicine. Upon it, too, will be placed the superstructure of *savoir-faire* that leads to an increase in production, distribution and communication. Thus we have in the great centers now being set up by UNESCO the beginning of a chain reaction that means new hope for some hundreds of millions of persons.

The new center at Patzcuaro, Mexico, illustrates the plan. There are 70,000,000 illiterates in Latin America, the average rate of illiteracy being 55 per cent. Patzcuaro aims to change this dismal showing. Those in charge of the project, which was launched in person by the Director General of UNESCO, Dr. Jaime Torres Bodet, are clear in their purposes:

> Latin American educators have also long realized that illiteracy is virtually a synonym for hunger, disease, poverty and wastage of human resources. For decades, they have worked on the principle that illiteracy is only part of a way of life that must be changed. Literacy for its own sake is not enough.
>
> The key to this change is the teacher. Mass-produced drugs can be used to attack such diseases as yaws and malaria but there is no such thing as a mass-produced teacher and teachers are what are needed to attack illiteracy and ignorance and the other "diseases" that spring from them to afflict the people.
>
> Educators can point to many examples where campaigns against ignorance and low living standards, even though they have started off in a spectacular way, have slowed down and failed to produce lasting results in the face of a shortage of teachers and educational materials.
>
> Today, the problem of making good these two deficiencies has been singled out for attack by UNESCO under a plan to establish an international faculty for training teachers of fundamental education—a term coined by UNESCO to describe ways of teaching people to live fuller and better lives in their own surroundings. The plan also provides for the development and production of adequate educational materials by this teachers' college.
>
> * * *
>
> Latin America will therefore be the first of five regions—the others are the Far East, India, the Middle East and Equatorial Africa—to benefit from the work of what UNESCO calls a "fundamental education training and production centre." With the other regions, it comes under a $20,000,000 plan to create a world network of six such centres, training some 4,000 fundamental education teachers of teachers over twelve years." (*Courier*, February, 1951.)

The mobile teams of specialists in education at Patzcuaro are not simply experts in reading and writing. They include people who have

worked in physical and mental hygiene, home economics, practical farming and the handicraft industries. Learning to read comes best when what you read is sensed as interesting and important, whether your age be six or sixty. Reading is more than a skill; it is a transformation.

Governments—devoted as they may be to the happiness of the individual—have also a purpose that transcends any given amount of learning. They know, as never before, that natural resources cannot be translated into useful wealth if the population is kept ignorant. Moreover they cannot count on other nations to help them without some kind of exchange. They have a sense of inferiority as they view nations that have provided these great bounties to their people. Thus India has recently enfranchised 180,000,000 voters. Of this vast population over 80 per cent are illiterate. How can they get clear on political issues? What kind of government can be set up in villages, cities and provinces when there is so little common understanding through the channels of reading and writing? India, therefore, understandably is embarking upon an enormous educational program.

Again we may cite the example of Japan. Prewar Japan was literate in one sense but definitely backward in another. The children could read the ideograms, even though the cost of acquiring them was great. The trouble was that they could not read well enough to follow a standard discourse without special phonetic assistance. Moreover there was little encouragement of criticism and of new ways to solve problems. The new Japan is taking a much different line. In its constitution, and in the words and examples of its new leaders, Japan today is expecting the young to become free to develop into the kind of adult citizen that we in the western world have long admired. The underlying talent of Japanese youth is unquestionably great. Developed along these new lines, it should make of Japan a tower of strength in the Orient and a means of resisting any doctrines alien to the free spirit.

This, then, is the human chain reaction: persons affect other persons through mutual exchange in an atmosphere of freedom. The teacher himself must be free. In contacts with his pupils, the relationship should be that of guide and friend. He may be a task-master for himself and for his school, but he is not a custodian of all knowledge and he must not exercise his will at all costs. He shares with others a certain fund of common rights which he seeks to understand and to improve upon. He discerns the responsibilities that go with rights. The teacher succeeds as his pupils continue to learn and think long after they have passed from his view. He does more than build block upon block. If he is a good teacher, the units of construction remain alive, never to become part of a static structure, however beautiful the façade. Rather they become what they were meant to be in the organic and cultural history of the human race—growing things that form new and more beautiful patterns.

"Education Is Power"

A survey of history reveals the power of education. A glance at the thoughts of those who have dealt in power lends credence to this theory. Napoleon states that his principal aim in establishing a teaching body was to have a means of controlling and directing political and moral opinions. Bismarck held that he who directs the school directs the country's future. We of the United States have always recognized the value of the schools in furthering our ideals.

Nazi Germany and Fascist Italy of yesterday and Communist Russia of today provide striking examples of the implementation of the power theory of education. Without the use of educational programs to spread their theories, the ideologies would have remained inactive.

Obviously enough, the power of education can be utilized for good or evil purposes, even as the power of atomic energy. Hitler, Mussolini, and Lenin chose the evil course. We of the Free World have chosen the good route.

To develop the atomic analogy further, the power of education, like the power of uranium, may remain dormant. For success, implementation is all important.

We of the Free World stand at the crossroads. We have perfected the science of education to a degree not equalled in the world. If our way of life is to survive we, in the spirit of Adams, Jefferson, and the Oak Ridge scientists, must put our theories into constant, active use to perpetuate the ideals of the democratic faith.—William E. Garner, 87 Newton Street, Ozark, Ala.

Educational Leadership in the Atomic Age

By JOHN A. SEXSON

EDUCATIONAL LEADERSHIP! The Atomic Age? Seldom will one find two major concepts of such diverse connotations so closely interlocked in a single phrase. Educational leadership —millions of words have been written about it —down through the ages its nature and functions have been fairly well recognized and defined. Whatever one may add will necessarily be repetitious.

The "Atomic Age"! Even our most learned scientists disclaim firm concepts of what it portends. There is today no modern Tennyson speaking out of our day and generation prophesying as did the Victorian laureate:

"For I dipt into the future, far as human eye could see,
Saw the vision of the World, and all the wonder that could be;
Saw the heavens filled with commerce, argosies of magic sails,
Pilots of the purple twilight, dropping down with costly bales."

No one seems assured as to what the future holds for humanity. Fear and uncertainty are rampant. Science and technology have placed new and awesome forces at the disposal of mankind which he seems confused as to how to utilize for his welfare. Even as we glance at the technological achievements of the last half century we are at a loss to relate them to future developments or to utilize them as a sound basis upon which to forecast the future. It does not seem credible to believe that bigger dams, bigger bridges, faster planes, more miraculous drugs, or more amazing materials will continue to appear for the next half century at the rate or in the quantity they have for the last. Yet they may. Interplanetary travel seems to us today no more fantastic, with our supersonic speed planes, than these planes appeared to the generations whose "a-mile-a-minute" trains seemed the ultimate in rapid transit and who would have regarded the modern automobile as an impractical Juggernaut.

WHEN WILL WE BE FREE FROM FEAR?

The list of scientific discoveries and technological inventions in the last half century is almost incomprehensible whether in the field of utilization of natural resources such as petroleum; the creation of new synthetics such as resin and rubber; the invention of power machines such as the diesel and the internal combustion engine; the perfection of illuminants; the developments in electronics; the perfection of the mass media of communication; the discovery of new miracle working drugs; or the production of vitamins. Will events such as these characterize the Atomic Age? Granting that they will—may we find ourselves at the end of this era as we find ourselves at the close of the last, beset by fear and confronted with the most dire threats civilization has thus far experienced?

Lewis Munford reminds us that what scholars, "discovered long before the events themselves were visible, was corruption, delirium, babble, violence, and death." And recently Henry Steel Commager appraised our magnificent scientific advances of the last half century: "Looking back on the last half century we can find little ground for joy, and little evidence of achievement, except in the material realm. In truth, if asked what we achieved, we might say that we survived."

HOW WILL YOU CHOOSE?

So at the outset of this Atomic Age we are plainly confronted with alternatives—perhaps at no previous time in history has it been so easy to see so clearly how man's future will inevitably be conditioned by his choices—in not one alone, but in many phases of human attitude and behavior. A choice between democracy and communism, between free enterprise and socialism, between material gain and spiritual values, between mutual aid and selfish aggression, between a rampant nationalism and universal human welfare may have tragic repercussions.

★ *John A. Sexson is Executive Secretary, California Association of School Administrators, 38 North Raymond Avenue, Pasadena 1, California, and Visiting Lecturer in School Administartion, University of Southern California. He is a member of Phi Delta Kappa.*

When the Atomic Age is finally appraised it seems likely that the balance for progression or regression will be thrown by the choices made on one or more of the above issues. If, during this Atomic Age, scientists search for truth and for a deepening understanding of nature without regard to human welfare, if technology appropriates a major share of our vast material resources for discoveries and inventions largely designed to increase man's ability to wage war and destruction, if educators provide throughout this Age a socially sterile curriculum unrelated to the going-on life of the individual and of the society and with little bearing on those desirable goals requisite for the well-being and happiness of mankind, there is little ground for optimism and little hope that mankind will have reason to be thankful for the discovery of atomic energy.

The above is no inference that scientists have in the past had "no regard for human welfare"—nor that educators have supported a "socially sterile curriculum." Scientists are largely responsible for many of the blessings we enjoy today. It is hard for us—particularly for the younger generation to realize how much progress we have made in raising living standards, or from what conditions modern technology has lifted millions of people. It is even more difficult to estimate what education has done to free the minds of men from superstition, fear, ignorance and prejudice and to set his feet on the path to social progress. The gains have been great. There is no point in a pessimistic denial of progress. But there remains a need for a clear realization that we have not done enough in several crucial areas. To discover and define these areas is the challenge to educational leadership in the Atomic Age. It is essentially a need to accelerate advances in the social sciences comparable to those made during the prior era in the physical sciences.

The understanding of human nature and the release of the human potential for decent relationships are quite as essential for the even progress of society as the understanding of the atom and the release of the material potential of nature. Educational leadership must contrive an educational program that will enable men to make right social choices—and having chosen—equip him with the will, the wisdom, and the skill to attain his desired goals.

At the beginning of the latest era we were confident that we were on the right road. Living standards were rising, peace prevailed, production was rising, problems of distribution were being solved, educational facilities were expanding, an air of optimism prevailed. But two world wars, a paralyzing economic depression and the rise of the threat of communism have thwarted our high hopes. New problems have arisen. Dr. Karl Compton phrased the challenge to the modern world in his Walberg Lecture at the University of Toronto:

> "The people of our countries crave peace and security. They want protection against the perils of nature—like floods, hurricanes, earthquakes and droughts; and against man made perils of transportation, fire, and group violence. Labor strives for steady employment at higher wages, shorter hours and more confortable working conditions. They want the quality of goods to go up and prices to go down. People want better and more adequate housing. Those in business want larger profits. Governments, in our expanding civilization, need more tax money. Everybody wants better health. Those who think much beyond the present envisage ahead what I believe to be the greatest ultimate challenge to mankind, and that not many generations in the future. It is the problem of maintaining our growing populations in the face of rapidly depleted natural resources without descent into a final world epoch of struggle for bare survival."

Educational leadership is challenged to relate the educational program to these basic needs of mankind. This does not imply that education shall be solely concerned with man's material needs. Spiritual values consonant with the needs of the times have been and will remain a *sine quo non* of any educational program, but spiritual values do not flourish in an economic, political or social desert. While man does not "live by bread alone" neither can he live without bread. One of the basic problems of the Atomic Age will be the problem of production and distribution of the goods requisite for the comfort and happiness of mankind.

President Truman in his last inaugural address phrased the challenge succinctly:

> "We must embark on a bold new program for making the benefits of our scientific advances and industrial progress available for the improvement and growth of undeveloped areas. More than half the people of the world are living in conditions approaching misery—their food is inadequate; they are victims of diseases; their economic life is primitive and stagnant; their poverty is a handicap and a threat

both to them and to more prosperous areas. For the first time in history, humanity possesses the knowledge and the skill to relieve the suffering of these people."

If education is to be so broadened and if progress is to be made toward such ends during the Atomic Age we must produce a generation more socially minded and far more sensitive to human needs and human welfare than our own or any generation that has preceded us. We are faced with a sheer problem of survival—yet in this crisis in human affairs we are living in a world divided into two warring camps flying the banners of two clashing ideologies. Freedom loving peoples are threatened with the loss of what for them is the only basis of an endurable existence. One way and all our glorious achievements may come to naught—be wiped out or lost in a holocaust of war, carnage and destruction. Educational leadership in common with leadership in all fields of human action and thought must throw the weight of education into the balance on the side of human welfare.

Good Schools Are Caused

Good schools—schools that will support man in his efforts toward desirable goals—do not "just happen." They do not result from a blind dedication to the task of transmitting intact the accumulated culture of the past—they are not to be produced by aimless and unscientific experimentation with new and untried theories of human thought and conduct. Statesmanship in education must be on a par—even better than political statesmanship. Scientific research in education, social inventiveness, must match, even excel scientific research in the physical sciences and technological inventiveness.

Life Has Been Made Better by Education

Education has made prodigious contributions to the improvement of individual and community life. All over America schools, under educational leadership, have helped our people to live better, happier lives by inculcating those knowledges and skills requisite for better human relationships; for more and better prepared food; for more attractive and more hygienic living and working conditions; better and more attractive clothing; more satisfying and better paid vocations; by teaching people to be healthier; to care better for the sick; to participate more effectively in community life; to better govern themselves; to live with other peoples in understanding and toleration; and to make constructive and creative use of the marvelous mass media of communication, the radio, cinema, television, the sound reproducer and the amplifier.

Yet in all these areas only a beginning has been made—the unreached possibilities are limitless, our present achievements modest. In too many schoolrooms the present educational experiences provided are of little practical value. They are ritualistic—they rest too much on custom and tradition. They are geared to a day and generation long since passed. They perpetuate rather than improve the conditions under which the people live. They send too many out into our modern world poorly equipped with the knowledges and skills requisite for effective living.

Yet besides these some schoolrooms are others, where education has been made effective means for significantly improving all phases of individual and community life. Under the discerning educational leadership of the teachers the curiculum has been revised to include the knowledges and skills most needed to vitalize the social, economic, political and spiritual ideas, attitudes, ideals and accomplishments of the community. Better homes, better recreation, better cultural institutions and higher standards of living have been developed in areas where heretofore only frustration and stagnation have prevailed.

How to make education an effective means for the control of men's attitudes, responses and behavior is being demonstrated in a rapidly increasing number of districts. Effective methods of teaching, the laws of learning, the formulation of goals and purposes, and the means of their achievement are now an open book to well-trained educational leadership. The application of the scientific method to the solving of educational problems has been effectively demonstrated. Our failure has been in our inability to arouse the public interest and concern in the social sciences that they have demonstrated in the physical sciences. When men are in fact, as interested and concerned about human welfare and well being as they were in the previous era in material wealth and progress, research in the social sciences will be as well supported and as effective as it

has been demonstrated to be in the physical sciences.

Educational leadership may well take a leaf from the history of scientific progress and read therein the steps by which scientific advances are made. Back of the era of scientific progress which ushered in the Atomic Age lies a long history of unselfish dedication of thousands of men and women to the unflagging service of scientific research and the slow accumulation of the knowledge that made the release of atomic energy an accomplished fact.

Educational leadership must see in the schools the laboratories where world-shaping discoveries in human relationships may be made. There with unfaltering devotion to the welfare of mankind educational leadership must, at whatever cost, make these laboratories the symbol of those sound scientific researches, discoveries, and inventions required to match man's social behavior with his material achievements.

If this may be done in the course of this Atomic Age, and in time, man may emerge from the Atomic Age in possession of that well rounded wisdom that will be required to make of this earth a happy dwelling place for all peoples. The threat resides in our failure to recognize the importance of the social sciences; to see in the wreckage of our hopes the causes of our defeats; to seek with equal diligence that balance between material and spiritual values essential for human well being and happiness; to incorporate in our educational program the disciplines that are correctives for fear and hate; to direct men in the search for enduring verities; and without hindering our efforts to pierce the mysteries of the physical world, redouble our efforts to penetrate the mysteries of the human mind.

These proposals are consonant with the credo of Phi Delta Kappa. They entail primarily the development of a teaching profession made up of persons capable and educated to do scientific research and experimentation in the social sciences and the inventiveness required to apply the results of their findings to the practical ends of public education.

To attain such ends administrators, boards, the electorate and the teacher must unite in the development of an adequate policy of personnel recruitment and administration. A staff that can make progress with such a program must be composed of persons imbued with a fervor for real scientific investigation—and contemptuous of slipshod and careless practice. Such a staff will not emerge from any process of "hiring and firing" from a supply of ill prepared applicants. Such a staff will not enter or remain in a profession where working conditions, security, and compensation are inconsistent with scientific practice. To those seeking opportunity to make a real and lasting contribution to the general welfare the challenge is immediate and close at hand.

The 4th R Is for Radiation

We are now in what might well be called the Age of Radiation. We can say there are four R's—Reading, Riting, 'Rithmetic, and Radiation.

The Age of Radiation is quite new. We still know very little about it and we need new knowledge. We need new knowledge in both the good and in the military side. In the United States we have a very large organization to get this knowledge. It is known as the Atomic Energy Enterprise of the United States. I said it was large. It is the largest, most complex, industrial engineering research and weaponeering organization in the history of the world. Some seventy thousand people are occupied in it, and the annual budget is about a billion dollars. It has thus far expended on the order of five billion dollars.

Geographically it extends from the heart of the Belgian Congo to the Marshall Islands of the South Pacific area, and I can tell you that it has all kinds of problems, problems from strikes to South Sea Islanders, from scientists to senators, from soup to nuts—and I do mean nuts.

I said at the outset that atomic energy and the atomic bomb are not the same. Here are potentially great gifts for mankind.

We shall need knowledge and we shall need courage, but more than anything else we shall need faith. We shall need faith in the institutions of freedom. With faith in each other, with faith in our institutions, with faith that the Creator of us all did not endow men with the ability to unlock the secrets that lie within the atom in order that they should destroy this beautiful earth and all that is on it—with that kind of faith, I want to share with you my deep and abiding belief that we shall make these atomic discoveries serve the betterment of humanity and the glory of God.—David E. Lilienthal, to the American Association of School Administrators, Atlantic City, February 27, 1950.

A Basis for Leadership

By BENSON FORD

OUR ECONOMY is being strained to meet not only our own defense needs but, in large measure, those of the other free peoples as well. Marching at the head of 53 free nations, we have taken up the most fateful role this nation has ever played in world affairs.

In measuring our ability to meet this challenge, we are relying heavily upon our material resources. But what of our spiritual resources? If we are to provide real leadership, we must be prepared to offer more than military and economic strength. We must offer spiritual strength, too.

We shall have to be strong enough within ourselves to meet the great problems outside us. We shall have to lend our spirit to those who are uncertain and afraid.

If we are to provide a much-needed spiritual leadership for the free peoples of the world, we face a two-fold task:

First, to live democracy more effectively at home.

Second, to understand and make ourselves understood by men and women in other nations.

Some say that we are strong because of our vast natural resources. Others say that the foundation of American strength lies in our economic system. Neither these nor any other answer in economic terms can explain our basic vitality.

The wellsprings of our vitality are not economic. They go deeper: they are ethical and spiritual.

We believe in man. We believe in men not merely as production units, but as the children of God.

Our society in America is founded not upon the cold and bloodless "economic man" of the Marxist, but upon faith in man as an end in himself. We believe that the purpose of our society is not primarily to assure the safety of the state, but to safeguard human dignity and the freedom of the individual.

Our unparalleled productivity and standard of living are not the consequence of an economic system. It is the other way around. Our economic success is the consequence of our ethical and moral standards, of our democratic faith in man.

★ *Benson Ford is Vice-President, Ford Motor Company, and General Manager, Lincoln-Mercury Division, Detroit, Michigan.*

We have ethical guide lines in this country. We have developed, rather highly, a sense of what is right and what is wrong, of what is fair and decent, and what is just crude use of arbitrary power. Our democratic faith is the very foundation of our buying and selling, our hiring and firing, our political and financial institutions.

From the beginning, we have been against the idea of class in principle, and we have sought to avoid classes of society. We have believed in equality, and we have sought to provide equal treatment and equal opportunity for all our people.

On these foundations, we have accomplished great things.

But even as we recognize the true source of our strength, we must admit that there is still a large gap between the ideal and the reality. About the principles of American democracy, we are very clear. In their application, we are sometimes uncertain and hesitant.

Let us admit very frankly that we have not lived up to our own ideals. Here, in a nation which is the acknowledged champion of democracy, we are still beset by intolerance, prejudice, bigotry, and racism. We are in the paradoxical position of believing wholeheartedly in man and yet denying to other men, even here in our own country, the respect and tolerance which man deserves.

We have no way of knowing what prejudice and bias have already cost us in terms of human welfare and progress, but I can guess that it would stagger the imagination. We get some idea of costs through the number of man-days of work and potential production lost each year as a result of labor-management friction. But how do we measure untapped human resources, lost opportunities, and the bitter discontent which comes from repeated frustration?

It is the business of our military forces to help

defeat communist aggression. But it is our business—yours and mine—to help defeat communism. We can do this only if we make a greater effort to demonstrate how superior, in human terms, is our way of living. Wherever we deviate from the moral and ethical standards we hold out to the world, we open up a chink in our armor.

A reason may be that we just don't know how to tear up the roots of prejudice and bias within us. It seems to me that the answer here is education. We have a lot to learn about ourselves—why we humans think and act as we do, how and when we develop intolerance, how we can adjust ourselves to human differences, and many others.

In addition to having convictions of our own and making them understood, we must also have the will to understand others. Even if there were no threat of war, we could not hope to live apart from the other nations of the world. We have gone into the world to stay.

Years ago there were effective barriers of distance between nations and continents. Spiritual and psychological differences did not matter. Today, modern communication has made us all neighbors. And if we are ever to live as good neighbors, we shall have to reach a fundamental understanding with each other.

How well do we know, even now, the people of Asia? How well do we understand them, their aims and their problems? Many of us barely noticed the invasion of Manchuria in 1931. It wasn't until the bombing of Pearl Harbor that we turned our eyes toward Asia in earnest. Now, with new aggression being waged on that continent, we are beginning to realize how important that part of the world is to our own welfare.

No matter how profound our differences, we must recognize that we and they are equal in our fundamental humanity, equal in the eyes of God, equal in that we are all endowed with reason and conscience.

Unless we can reach out in this way, unless we can make democracy and brotherhood meaningful in our foreign relations, we cannot hope to win out in this struggle for men's minds and loyalties. We have a responsibility to practice what we preach.

What we do does not go unnoticed by others. There is strong evidence that millions of people in the totalitarian states have not given up hope of regaining freedom. If we falter now, they may despair of ever returning to democratic ways and beliefs. If we live up to our ideals, we can offer them great encouragement.

Some of us want things we can not have without war. Some of us do not want to give up the things we must sacrifice if we are to have peace. We have no real choice. Unless we are willing to pay for peace, we must face the terrible alternative of a bare struggle for survival.

This is the real test of our spiritual strength and our spiritual leadership. If we demonstrate that we are concerned with the welfare of others as well as our own, if we make it clear that we believe in freedom and equality for others as well as ourselves, we will renew the spirit of democracy in men everywhere. We will keep alive the hope of universal freedom and universal brotherhood.

By endless reiteration of the slogan, "America must be strong," we have been able to put a stop to our mental processes altogether and to forget what strength is. We appear to believe that strength consists of masses of men and machines. I do not deny that they have their role. But surely the essential ingredients of strength are trained intelligence, love of country, the understanding of its ideals, and, above all, a conviction of the justice of our cause!

Since men of good will can regard war as conceivable only as a last resort, they must be convinced that all channels of negotiation have been kept open until the last moment and that their own government has sought in good faith, and without consideration of face or prestige, to prevent the outbreak of war. Men of good will must be convinced that they are not fighting to maintain colonialism, feudalism, or any other form of intrenched injustice. And since it is obvious to the merest simpleton that war must come sooner or later to a world of anarchy, men of good will would hope that their own government would proclaim its desire to transform the United Nations from a loose association of independent states into an organization that could adopt and enforce world law.—Robert M. Hutchins.

Teaching: a First Line of Defense

By F. E. ENGLEMAN

Man has been able to adjust himself on this globe and survive by his own ingenuity it is true, but more because the world has changed slowly and given up its secrets at a relatively stable pace. During the past fifty years, however, the rate of change has been so phenomenal, that serious doubt exists relative to man's power to cope with and master what he himself has created. Man's discovery of new knowledge and new forces has brought him into utterly new relationships with himself and his neighbors. Suddenly he is forced to adjust his whole concept of values, change his whole mode of behavior, and create a set of controls for previously unknown powers. The task we as leaders and teachers have of preparing our people to live in an atomic age, when the great masses have not adapted their ways to an electric or even a steam age, is frightening, yet challenging.

Education that builds strength for a whole nation is serious business. He who shoulders arms for such defenses must be made of stern stuff.

Some of these characteristics to which we should be sensitive and which should be taught by every teacher today are:

1. The physical world has become a miniature of its former self—it is no longer huge. Man can and does span its surface in very short order. The fact that students commuted from Europe to American universities last year is ample proof. Communication in large measure is instantaneous.

2. The peoples of this 1951 world are congested. The Assyrian, the Brazilian, the Australian, the Japanese, the Indonesian, and the American are close and intimate neighbors. Isolationism for the individual and for the nation is passe. Friendly contact with all people seems a necessary aspect of this modern world. Philosophies, religions, customs, mores must be somehow be harmonized since all people are neighbors.

3. The 1951 world is a very interdependent and interrelated world. The nature of modern industrial life and mechanized agrarian pursuits make man in large measure dependent upon his fellowmen. Therefore, the welfare and productivity of all men everywhere is the concern of each man, anywhere.

★ *F. E. Engleman is Commissioner of Education, State Department of Education, Hartford, Connecticut. He is a member of Phi Delta Kappa.*

4. This modern world community proves too that men everywhere—all races—are very similar in physical, mental, and emotional traits. There is no super-race. Given similar environments and opportunities, races as such rise to about the same level.

5. Knowledge and science now place man for the first time in reach of goods and services adequate for the basic wants of all men. Enough food, shelter, clothing, and basic services for all can be produced now. This is a new era. Never before was this dream ever attainable for men everywhere. The implications in this for domestic and international peace are realized by only a few men. Educators everywhere must understand its significance.

6. Frightening as it may seem in 1951, the power to destroy has even exceeded our power to produce, to build. Usable energy, which until modern times was largely found in human beings and in their domestic animals, now developed by physics and chemistry, becomes our hope and our fear. Its use for good, for productivity, will make man's dreams come true; its use for destruction, for war, will change dreams into nightmares. In the hands of a few evil men the power, the energy generated by science, may enslave the masses or even destroy them.

7. Another characteristic of this modern world, and one which holds much promise if extended, is that the people of all nations are gradually learning a new concept. What America has practiced since the founding of this country is now dawning on the minds of people of other lands; namely, that there are ways to settle differences

other than by physical force and bloodshed. To many people that is a new concept. This idea once in general practice will pay immeasurable dividends to all mankind.

8. Still another characteristic of our modern world is the fact that its secrets are being revealed to man at an ever-accelerated pace. New knowledge, new understandings, new appreciations concerning the laws of the physical universe as well as of man himself are discovered each year in encyclopedic proportions.

9. Furthermore, every teacher must accept the fact that we live in a world that has new ways and means of bringing knowledge and understandings to the learner. Tools utterly unknown a generation ago are now available. Old methods and old materials may now be supplemented by new resources, new tools. No longer must we depend on reading, direct oral instruction, and the like as exclusive ways of producing learning. Mass education is available through new media. The use of audio-visual aids, recordings, television, and the like may revolutionize education —certainly learning may be greatly accelerated. It must be so. Since the Kefauver telecast, can anyone doubt the power of television for public understanding and mass education?

10. Last of all, this world of 1951 is split wide apart by two basically conflicting ideologies, both backed by armed might, each capable of bringing chaos and ruin to contemporary civilization. What this is all about, what its dangers and outcomes are must be understood by all teachers. Why we fight in Korea, why we rearm Europe, what the world issues really are—all this and more—must be the stock-in-trade for educators everywhere.

Learning Is an All-Day Affair

With this brief characterization of the environment into which children must be fitted, and which in a short time these same persons must understand and control, let us look for a moment at the school itself. Since learning is an all-day affair, since education takes place during all the waking hours, the child, in a major sense, becomes a product of his environment. Teachers must not only be students of child development and educational techniques, but they must also be students of the local, the state, and the world community. They must understand and interpret both man and nature.

For the local as well as the world community, let us determine what knowledge is of most worth. What skills pay dividends? What appreciations, feelings, emotions shall we cultivate? What values must have priority for contemporary world culture? What basic understandings must child and man possess in this unstable world? Too we must have open minds which will not associate contemporary value with what might have been valuable in the past but which is now too often useless. Some values change little with time; these must be preserved. They should, however, constitute only a portion of the school curriculum.

Believe in Education!

Above all else, however, as was done by the wise leaders who began this nation of free men, let us be led to know, too, to understand, and to believe that no such nation can long endure without a free public school system which prepares all children and youth for the obligations, the insights, and the responsibilities for a society of such magnificent proportions. William James once said, "the great thing is for a man to be saturated with something." American citizens seemingly have a long way to go before reaching a saturation point on belief and support of public education.

The American teacher has an obligation and an opportunity to assist citizens everywhere to know, to believe that our free public schools, open to all regardless of race, creed, or economic status, constitute the foundation stones on which rest a democratic society. Free men cannot for long remain free without it. For more than a hundred years, the wisest statesmen of this nation have pronounced this doctrine. Recently historian Henry Steel Commager wrote:

> "No other people ever demanded so much of education as have the American. None other was ever served so well by its schools and educators.
>
> . . . . This most heterogenerous of modern societies—profoundly varied in racial background, religious faith, social and economic interest—has ever seemed the most easy prey to forces of riotous privilege and ruinous division. These forces have not prevailed; they have been routed, above all, in the schoolrooms and on the playgrounds of America."

(Continued on Page 93)

Literacy as a Base for World Peace

By FRANK C. LAUBACH

"IT'S A SMALL WORLD"—and it is getting smaller, thanks to inventions like the airplane and radio. Presently we shall have one world or no world. Unless we share what we know with others, the atomic age will engulf us. But how can we share the best we know with people who cannot read?

Literacy is not the full answer, but it is the point at which we must begin. The man who cannot read is actually "out of this world"—he has no part in it. And there are still millions of him!

Fortunately, simple methods are at hand to teach him how to read, quickly, easily, once he has been given the incentive to learn. The farmer who has come to realize that he needs reading in order to learn better methods of farming—he has the incentive. The villager who realizes that he is being imposed upon, exploited, because he does not know how to keep accounts—he has the incentive. The woman who knows that her children can be strong and healthy—she has the incentive. There are millions of men and women now who have seen enough of the outside world to have the inventive to learn to read—who *are* learning — who are using the chain reaction, "Each One Teach One."

The bottleneck is the next step, the preparation and distribution of simple literature, dealing with the things people want to know, in their own language. At first the literature to meet these human needs may have to be translations from existing materials, simplified and adapted, but as quickly as possible we must develop writers who can write simply and effectively for the newly literate among their own people. This we are trying to do now in various institutions here and in the field.[1]

Ideas are what win the world, and fortunately, the biggest ideas can be communicated very simply, if we really work at it—ideas like brotherhood, cooperation, Christian democracy. Of course it is harder to write simply but it is also more rewarding to aim at the newly literate. People who have just learned to read believe everything they see in print. We shall have to hurry to outstrip those who use less constructive, less unselfish propaganda on them. We can still win "the battle for men's minds."

★ *Frank C. Laubach is Special Counselor and Foreign Representative, Committee on World Literacy and Christian Literature, Division of Foreign Missions, National Council of the Churches of Christ, U. S. A., 156 Fifth Avenue, New York 10, New York.*

When we were preparing the book, "Making Everybody's World Safe; Helping the United Nations," we found that some of the largest ideas can be put up in small, plain packages. "Fundamental Education," the report of a special committee to UNESCO, listed these big-little topics, citing them as illustrations of the fact that some of the most far-reaching ideas can be communicated simply. The topics include: The Nations Have United; Learn to Like People Who Are Different; Differences Make the World Beautiful; Thoughts Build the World; Good Thoughts Build a Better World; It Could Be a Good World for Everybody; Everybody Is Dependent Upon Everyone Else—a progressive education in the elements of Christian democracy—and then some of the practical means of getting there; through better homes, better farms, cooperatives, fishing, mining, industry.

DISEASE AND POVERTY GO WITH ILLITERACY

Illiteracy and great physical poverty and disease are always companions. Where there is great physical poverty, there is also starvation of the mind and the spirit of man. By teaching a man to read, you set him on the path to a higher

[1] Courses in literacy, phonetics and linguistics, are given by Dr. John Maurice Hohlfeld, Associate Professor of Linguistics, at Kennedy School of Missions, Hartford Seminary Foundation, Hartford, Conn., and at Scarritt College, Nashville, Tennessee. At the instance of the Committee on World Literacy and Christian Literature, the School of Journalism of Syracuse University offers graduate courses in religious journalism, for Americans expecting to work in foreign lands, and for nationals of other countries planning to do journalistic work when they return to their homelands. A number of foreign students have already had the benefit of these courses—Miss Irene Singh and Miss Vimala Rajamanickam of India had scholarships from church groups in America, and Mr. G. R. Katangole, of Uganda, East Africa, who is about to enroll there as a scholarship student also, expects on his return to edit a bi-weekly journal and to collect and publish African stories and poetry. Miss Doris Hess, an American, took the work at Syracuse as a prospective missionary, and has gone to the Philippines to train men and women there to write for their fellow countrymen.

standard of living, with all the advantages to mind, body and spirit that that higher living standard entails. In Ecuador in a literacy campaign they used the slogans "One illiterate less is one citizen more," and "Make a great and powerful nation by teaching people to read."

Parents as Teachers

The villages cannot be improved until the homes are. The parents are the first teachers, and illiterate parents can give their children only their own circumscribed concepts. The illiterate father is totally unable to grasp the meaning of the "one world" into which we have been plunged by the radio and the airplane—he has not yet learned the implications of the earlier inventions, the railroad, electricity, the telephone, the telegraph. The literate father is a much greater asset to his family economically also, for he is not limited to unskilled farm labor; he can engage in mechanized farming, technical industry, the more highly paid service professions. He can get ahead, and his children with him. His wife needs simple literature on hygiene and home nursing; better diet and cooking, greater variety of foods; home decoration and improvement; family relationships and neighborhood get-togethers.

Families with these entering wedges into cultured, complete living will know what political and ideological voices to follow. I have seen the bitterness and resentments of the silent billion, the folk who cannot express their wishes, the forgotten men. They will grasp any hand that is extended to help them. Therein lies our hope—and our responsibility.

Efforts for Literacy

UNESCO plans to spend twenty million dollars in pilot projects in "a worldwide drive against illiteracy and low living standards." Training centers will be set up in all parts of the world, to prepare teachers to go into remote villages to help the people. Each of the recruits trained will be able to train others. Mexico already has had a training center like this at Patzcuaro. There under Jaime Torres Bodet, former Minister of Education of Mexico, and now Director-General of UNESCO, a simultaneous attack was made on illiteracy, disease and soil erosion, three of the underlying reasons for poverty in the rural areas. Each team going out into the villages included an elementary teacher, a doctor, and a veterinarian.

In our own recent literacy campaigns in India, Burma, Singapore and Indonesia, we were assisted by Frederick J. Rex, Technical Advisor of the Committee on World Literacy and Christian Literature,[2] who as field director of the Education Division of UNESCO, set up educational seminars in Rio de Janeiro, Brazil, and in Mysore, India. His experience and contacts were of great help as we did our work. In Indonesia, we went at our task of planning and producing graded reading for new literates fully conscious that it was one step in the huge task of building the foundations of democracy there.

In India, we met with fifty delegates from all parts of the great new democracy, studying how to prepare good reading to *keep* new literates literate. People lapse back into illiteracy very speedily when they have found nothing interesting to read at their own reading level. They need information which will help them out of their poverty, disease and despair. Dr. Gladys Rutherford of India Village Service, a genius for telling health facts simply, gave us samples of her talks to villagers, illustrated with "jet" drawings. We noted her methods for use elsewhere. G. H. Towle of the Agricultural School at Vadala, gave simple talks on getting more out of the soil; his talks are destined also to be the basis for brief booklets in several Indian languages. Another Congregational missionary, Loy Long, told of the new industry he and his wife created: 150 women have been trained to support themselves making handbags and mats out of sisal, a native temp.

In India also, we met Miss Ella Griffin of UNESCO and the U. S. State Department, who was loaned to India for several months to help in this matter of preparing simple literature. Her time in India was much too short, for she also aids many countries in this vital literature production.

The ideal, of course, is for Indians to write this material for their fellow men. That is why Hislop College at Nagpur, India, will start a course in practical journalism next year. It will be taught by Roland E. Wolseley of the School of Journalism at Syracuse University.

When we were in Tripoli in February, 1951,

[2] Division of Foreign Missions, National Council of the Churches of Christ, U. S. A.

there were fifty members of the UN there, getting Tripoli ready for complete independence in 1952. They realized their overwhelming job in educating the people for independence, and their enthusiasm for literacy showed the importance they attached to it. Less than five per cent of the adult men can read, and not even one per cent of the women.

In Jordan, I was invited by the literature committee of the United Nations Relief Works Administration (UNRWA) to see the remarkable literacy campaign set up by Halana Mikhael, an Egyptian woman, who had worked with me in an early trip of mine to the Near East. She had her inspiration for literacy from an American missionary, Miss Davida Finney. In 1950, UNRWA asked Miss Mikhael to go to Gaza, where 200,000 refugees were crowded. She worked there entirely with volunteers whom she has trained, and with very slim funds for books and charts, but she has organized literacy campaigns all over Syria and Lebanon.

The Road to Health

In Afghanistan, UN and UNESCO officials discussed with us the reading material needed there for new literates. The technicians brought to Afghanistan are baffled when they try to make known to the masses the facts about health, animal husbandry, and agriculture. Again that need for simple stage literature, well illustrated and well written. They are capable of producing excellent literature in Afghanistan. Our new primer was printed in record time on the large government offset press, and is as fine-looking a primer as any we have ever made.

In Burma, Dr. Gerald Winfield, a former missionary to China, now with the Economic Cooperation Administration (ECA) gave us data for literature on the prevalent diseases there. Government officials in education, veterinary service and agriculture furnished us data, too, when we asked "What do you know that you wish the illiterates and new literates knew?" All this information we started putting into narrative form. The hero of the story, U Sein, learns this and that and puts it into practice, becoming a very wise man, a benefactor to his community as well as himself. We hope to use many adaptions of this reader all over the world. Adapted to Latin America, it may be "Juan and Maria, Wise Parents," and in Moslem lands maybe "Akbar, the Wise Man."

The World Calls for the Teacher

The silent billion are not deaf. Today they hear two voices. One is telling them, "You are poor because the rich have kept you poor. Revolt!" The other says, "Knowledge is power. Educated people know how to take wealth from the ground and minerals and water. Learn their secret."

The people of the world are willing to try either way. They are determined to lift themselves up as civilized human beings. Will you give them a hand?

Change Your Environment!

The doctrine that we must adjust ourselves to our environment, prevailing in American education, seems to me radically erroneous. Our mission here on earth is to change our environment, not to adjust ourselves to it. To adjust yourself to brutality, inhumanity, injustice, and stupidity, of which the world is full—though it is easy, and may look profitable—is habit-forming, and will make out of you at the last a character you would now shudder to think of!

Happiness lies in the fullest use of one's highest powers. It is folly to talk of the fullest use of a man's highest powers if he is starving to death. You are in little danger of starving to death, if a world catastrophe can be avoided. Your advantages are such that you have a decided superiority over the great majority of your fellow-citizens when it comes to the business of staying alive. Your problem lies in the moral and intellectual realm, in achieving the feeling that you have made the most of yourself, that you have done the best you could, and that you have not let down yourself or your fellowmen.

The goal toward which all history tends is peace, not peace through the medium of war, not peace through a process of universal intimidation, not peace through a program of mutual impoverishment, not peace by any means that leaves the world too frightened or too weak to go on fighting, but peace pure and simple, based on that will to peace which has animated the overwhelming majority of mankind through countless ages. This will to peace . . . arises out of a conviction that the fullest development of the highest powers of men can be achieved only in a world at peace.—Robert M. Hutchins.

"The Schools Should Teach the Fundamentals!"

Whose Fundamentals?

By HAROLD BENJAMIN

"I only took the regular course," a great analyst of fundamentals had his spokesman say.

"What was that?" inquired Alice.

"Reeling and Writhing, of course, to begin with," the Mock Turtle replied, "and then the different branches of Arithmetic—Ambition, Distraction, Uglification, and Derision."[1]

This classic colloquy might well be used as a chief item in some yet-to-be-constructed test of educational insight. Those who read it with only an amused chuckle could be marked as innocent professional bystanders. Those who accept it with a puzzled look would probably be scholarly conservatives. But those who read it and re-read it with mingled smiles and frowns should be branded forever as dangerous radicals.

These last are likely to be temperamental innovators who recognize and approve the Mock Turtle's deep heresy in suggesting that any true educational fundamental always belongs to the learner. They know the orthodox view that fundamentals are set by custom, by habit, by tradition, and by past values, real or imagined, rather than by current or future uses, but they are natively inclined to be suspicious of habitual custom and traditional values. To the question, "What good are fundamentals?" they reply, "Fundamentals are good for him who learns, good for him in his present society and in the better future society that he needs and wants, or else they are good for nothing."

The Persian boy, according to Herodotus, was required to master three fundamentals. He had to learn to ride, to shoot, and to speak the truth. No doubt the old historian recognized that in any horseless and bowless situation the youth so educated would have to use the third ability to confess his practical illiteracy. The Persian fundamentals were for men who had horses to ride, bows to bend, and true words to speak. It must have been obvious to all save the most reactionary that two of these fundamentals were ephemeral and that a different weapon or means of transportation could at any time require drastic curriculum revision.

★ *Harold Benjamin is Professor of Education, George Peabody College for Teachers, Nashville, Tennessee. He is a member of Phi Delta Kappa.*

The professional horse-raisers and bow-makers of ancient Persia probably never accepted this view. The king's treasurers and tax collectors, the landed lords, and most men of material substance were also undoubtedly among those opposed to new fundamentals. The old fundamentals could be taught without maintaining schools. Why put an extra burden on the tax-payers to teach nonessential folderol? It was obvious to these critics, moreover, that the old and tried fundamentals were not being well taught. Horsemanship, bowmanship, and truth-telling were all deteriorating. One can hear across twenty-three centuries the plaintive cry, "They don't even learn to tie a cinch strap or notch an arrow correctly nowadays, and as for giving a plain statement of unvarnished fact, that is apparently a lost art. What are the boys coming to? Let's get back to the fundamentals!"

Herodotus does not tell us whether any suggestion was ever made that to invision boys of the future without horses and bows was to be unPersian to the core, but it is likely that this ancient accusation was already old in 400 B. C. Certainly, since that date, anyone suggesting changes in the fundamental branches of education has been immediately vulnerable to the three basic charges of ignorance, extravagance, and subversion.

The Critic Is Criticized

The proponent of new fundamentals is probably antagonistic to the old fundamentals because he has never learned them correctly, it will be said. One who knows how to reel and writhe

[1] Lewis Carroll, *Alice's Adventures in Wonderland*, chap. 9.

will love and revere those disciplines. The iconoclast is a tax-eater, moreover, because new subjects always seem to cost more money than old ones. Frills like uglification require laboratories. This innovator is subversive and atheistic, finally, because he is attacking the educational foundations of our society. By their very names, *Distraction* and *Derision* are revolutionary and treasonable concepts.

Three Fundamentals of Education Then

The re-shaper of fundamentals commonly faces another barrier in the path to what he regards as progress. The three natural divisions of fundamental skills and attitudes are those that relate to (1) communication-transportation enterprises, (2) tool-instrument-weapon techniques, and (3) character-personality traits. In most primitive societies, formal schooling is given only for the third fundamental; in most "civilized" societies, instruction tends to become more and more centered on the first and second fundamentals. To step up instruction in riding and shooting, piling requirement on requirement and technique on technique in eager profusion, while leaving the teaching of truth-telling more and more to the family, a political organization, a religious group, or other agencies, some of which may be weak, formless, or socially disintegrating in effect, is the usual tendency in a society that is discarding its bows and horses.

For the last 200 years the world has been busily discarding old means of communication and transportation and old tools and weapons. The development of industrial machinery, the utilization of fossil fuels, the extension of first the printed and then the spoken word over wide areas at accelerating speeds, and finally the basic discovery of a means of releasing atomic energy have set the stage for the greatest changing of educational fundamentals the world has yet known. How well have these changes been made?

So far they have been made poorly. Undeveloped countries are still struggling to teach the barest elements of reading and writing, often in two or more obscure and difficult languages, to people who will seldom have even a newspaper to read, who are doomed to death by starvation or disease at an early age from controllable causes practically unmentioned in their fundamental schooling, and who could be taught better agriculture, sanitation, and other conservation of human and material resources by radio and motion pictures within at least half the time and with at least twice the effect now obtained by customary illiteracy-eradicating campaigns. Nations with untouched hydroelectric potentials roaring down their mountainsides, with millions of fertile acres uncultivated, with mineral and forest resources undeveloped, and with disease-ridden and undernourished children dying in droves will often be found educating ten doctors of laws for each doctor of medicine and a hundred writers of poetry, makers of philosophical "systems," and composers of "serious" essays for every trained engineer in the country. A clear measure of their understanding of fundamentals can well be gained by their usual response to such a statement as the one just made. "Don't you believe in lawyers?" they will demand scornfully. "Don't you think we need the joys of poetry, the solace of philosophy, and the dignity of humane letters just as much as you crass materialists devoted to the worship of the dollar?"

An answer is hard to give in brief, simple terms. It cannot be the either-or response the inquiry poses. It is not a matter of law or medicine, of poetry or the development of natural resources, and of philosophy or irrigation systems. It is a total problem of how these people are living, what changes they need in their lives, whether they want those changes, and what instruments can be found or made to produce the changes. These are the stuff of which fundamentals are made. These are the bases from which the three *C's* of communication-transportation skills and instruments, craft and combat tools and weapons, and character-personality traits are derived.

A basic principle of comparative education is here suggested. An educational system whose fundamentals are taught and defended primarily for their own sake is a backward system. It teaches riding without horses, shooting without bows, and truth-telling without reference to the main truths of its time. It reaches the nadir of insight when it argues for its fundamentals because they are good in themselves.

What, then, are proper educational fundamentals in these United States six years after the momentous August of 1945? They are three in number, as always.

Three Fundamentals Now

First, the total pattern of modern communication and transportation must be examined to determine the fundamentals of education at every level of maturity and skill from the nursery to the graduate school. To teach cursive writing in the first grade just because it is a "mark" of education is not simply useless; it is dangerous. To put an advanced student in any field through communication paces just for academic respectability is equally dangerous. Throughout the current system of schooling in the United States is the recurrent emphasis on communication skills for their own sakes. This is what produces in great profusion curricular anomalies and lags. If one-half the energy now expended over the English-speaking world to retain the idiotic *ie* and *ei* problem in spelling, for example, were devoted to devising and teaching some rational modern symbols for vowel sounds, one could observe the first truly realistic instruction in this fundamental since the formation of the language. If one-tenth of the energy now spent throughout the world teaching hundreds of other native languages were given to developing and teaching a single world language for all communication between groups with different mother tongues, the communication achievement would be so profound as to put the release of atomic energy in a secondary rank among the discoveries of the last thousand years. The one is a great advance in the control of physical elements; the other would be a great step in the self-control of men and nations, elements far more dangerous than uranium and its variants.

Second, the instruments and weapons demanded by the shifting, swelling tides of new opportunities and dangers following the development of new sources of physical and social power must be studied and analyzed for the determination of fundamental schooling on every level. There are no sacred skills of computation and reasoning. There is no tool of craft or combat that must be acquired for its own sake. Every device and technique of the current world or of the desired world which education must envision is good for the learner and his society or else good for nothing.

In the third fundamental, the schools of the United States, as those of other countries, have neglected most seriously the necessary examination of the social pattern, real and ideal, for which character and personality need to be developed. In a welter of superstition and priestcraft, talking vaguely but heatedly about teaching morals, and coming out with such puerilities as attempts to inculcate a reverence for God through catechisms, a veneration for country through flag salutes, and love for fellow man through competitive drills, the formal educational system has staggered and blundered along this road almost as much as have the home, the church, and the community. The main difficulty to overcome here as elsewhere is to establish the ownership of this fundamental by the learner. It is the student's moral standard that is to be developed for his society and not that of a church for a society of the Middle Ages. It is the student's honesty, truthfulness, generosity, and honor which are to be taught and learned in the student's actions, and not those of his parents or the members of the union or the civic club. The third *C* must be acquired in broad, intensive practice in the society for which it is designed. The program of activities in a modern elementary or secondary school, against which proponents of the old virtues are most wont to inveigh, is precisely the most important and often the only real teaching of this fundamental in modern education.

Are Reeling and Writhing ever proper fundamentals?

It depends on who needs to reel or writhe in what situation. The modern school man must be a scholar and engineer of those needs in those situations.

Is Distraction never a virtue?

Who can say until he examines its uses for men and women, young and old, here and now, and predicts them as best he can for there and later? Atomic fission may be followed by atomic fusion, but the fundamentals of education will still belong to the learner.

We are in a world revolution today, as underprivileged people strive for a place in the sun. Historians will say of us that our science of destruction became so great that we outlawed war in the early stages of the atomic age, working thru world organizations and by mutual agreement among nations. —Harold A. Hoeglund, Yakima Valley Junior College, Yakima, Washington.

One Educational World

By CHRIS A. DE YOUNG

SOME YEARS AGO I visited Nagasaki, Japan, with its antiquated, centralized system of education. Since then that city has witnessed the destructive effects of an atomic bomb and the constructive results of creative educational energy. The mushroom cloud after-effect of the atomic bomb disappeared. It has been followed by phenomenal progress in learning, tantamount to an educational revolution. For the first time Nagasaki has a local board of education, a local superintendent of schools, student councils, active parent-teacher associations, and a democratic base for a sound educational program.

The radiation of an atomic bomb can go down deep and last long, but the penetration of educational rays goes "deeper than plummet ever sounded" and lasts infinitely longer. Educational energy is more powerful than atomic energy. It can build where the bomb destroys. If properly harnessed internationally, the power of education is commensurate with world needs.

Commissions on *Atomic* Energy need to be complemented by Commissions on *Educational* Energy. International commissions are especially helpful in unleashing the latent potentialities of education. We are independent members of a world-wide profession, but we are so mutually dependent that we are interdependent. What happens to children and teachers here in Delhi, India, affects schools under the elm trees in my home city of Normal, Illinois, U. S. A.

Educational isolationism must die in an age of professional interdependence. In an age when science *splits atoms,* education must help *unite peoples.* Atomic fission must needs be balanced by educational cohesion. Too often in the past professional fission has produced educational confusion. We must present a united front educationally in a world divided politically.

The centrifugal forces that tear men asunder ought to be counteracted by centripetal factors that draw educators together toward the universal center—the child in any and every land. Our oneness as a profession and our universal task dictate that we accent less our differences and stress more our common denominator. What we have in common is greater than our differences. For example, teaching geography by the "curiosity or eccentricity method" is not as pedagogically sound as the universal-elements approach, with variations explained in the light of history, geography, climate, anthropology, and other conditioning factors.

Furthermore, in this age of supersonic speeds we must hasten educational and cultural exchanges. When I came to India more than thirty years ago, I spent more than thirty days en route by boat from the United States. On this trip by air, I was in the plane less than three days. In this age of speed we cannot afford to lose time in promoting one professional world. As science shrinks boundaries, education must widen horizons. An ancient oriental proverb pithily states: "The greater the diameter of light, the greater the circumference of darkness." Paradoxical as that may seem, it is indelibly true. The more ideas and ideals we export and import, the more we shall find to exchange in our world-wide profession of teaching. This interchange is facilitated through international commissions on educational energy, such as the United Nations Educational, Scientific and Cultural Organization, and the World Organization of the Teaching Profession.

UNESCO

Official and striking evidence that educational isolationism is dying both here and abroad is found in the organization and program of UNESCO—the United Nations Education, Scientific, and Cultural Organization, founded in 1945. This well known vehicle for unleashing educational, cultural and scientific energy is one of the specialized agencies provided in the char-

★ *Chris A. De Young is Professor of Education, Illinois State Normal University, though he wrote this article while on leave in Delhi, India, as Fulbright lecturer at the Central Institute of Education, University of Delhi. He is a member of Phi Delta Kappa.*

ter of the United Nations and affiliated with the Economic and Social Council. Its broad purpose is "to contribute to peace and security by promoting collaboration among the nations through education, science, and culture."

Alexander Meikeljohn said of the organization:

> It is an agency of study and of teaching rather than of external action. . . . Its aim is the development of that international intelligence upon which the success of any United Nations activity depends.

In signing the joint Congressional resolution providing for membership and participation by the United States in UNESCO, President Harry S. Truman said:

> UNESCO will summon into service in the cause of peace the forces of education, science, learning, and the creative arts and the agencies of the film, the radio, and the printed word through which knowledge and ideas are diffused among mankind. The government of the United States will work with and through UNESCO to the end that the minds of all people may be freed from ignorance, prejudice, suspicion, and fear and that men may be educated for justice, liberty, and peace. If peace is to endure, education must establish the moral unity of mankind.

Archibald MacLeish, an American delegate to the first session of UNESCO in Paris, said:

> History may be about to teach us that the Parliament of Mankind can only be attained through the Republic of Letters. If that is the lesson we are to be taught, then the United Nations Educational, Scientific, and Cultural Organization will be more important to the international evolution of our time than any other part of the United Nations. For it is precisely the function of UNESCO to realize the ancient dream of the Republic of Letters."

Thus the historical roots of UNESCO lie deep in history; its genesis is in the medieval community of scholars. The forty-four governments represented at the 1945 London conference merely confirmed an age-old longing for an organization that would help promote intellectual and cultural interdependence.

In the early days of UNESCO Associate Editor Ernest O. Hauser of the *Saturday Evening Post* found it "a high-minded but sadly muddled outfit." Columnist Malcolm W. Bingay wrote that it was made up of professional do-gooders: "The job of UNESCO is to discuss everything in the hope that somebody will find something to talk about." These caustic comments were applicable in a large measure to the initial gropings of a new-born babe. Now that the infant organization has reached the school-going age, it is maturing rapidly. As former Assistant Secretary of State Benton has said:

> UNESCO is a David, facing a Goliath of ignorance. UNESCO obviously is not going to bring about, in a few years, the moral and intellectual revolution that is required by the age ahead of us. It can now move gradually toward a more modest goal: to help dispel, in some degree, the unwarranted fears, suspicions, and hatred that hang like a fog over the world today.

Last year I had the privilege of attending meetings of the U. S. National Commission for UNESCO in Washington, D. C. This year I attended the second session of the Indian National Commission in Delhi, the capital of another great democracy. The similarity of educational problems and the common elements in their solutions reminded me of that neglected portion of Rudyard Kipling's abused quotation, "East is East and West is West and ne'er the twain shall meet." In the same sentence he wrote: "There is no East, there is no West, no border, creed, or birth, when two strong men meet face to face though they come from the ends of the earth."

Among UNESCO's many international activities is the project for the standardization of Braille. At the 1951 session of UNESCO in Paris, the 64-nation UN agency adopted a 12-year program to provide universal, free, compulsory, primary education and to reduce illiteracy among adults. "Fundamental education" is the weapon forged to fight mass ignorance. Such realistic education in the facts and foundations of living is, as stated by M. Trygve Lie, UN Secretary-General, "a basic condition for a rational world order." Since three-quarters of the world's adult population has had no formal education, UNESCO is indeed a "David, facing a Goliath."

In addition to its countless world-wide projects, UNESCO serves as a catalyst or self-starter in many significant national and regional activities. To give this statement a higher degree of specificity, projects in India and Southeast Asia are selected as examples. In this vicinity of Delhi, the campaign for fundamental education is launched with the help of movable caravans, which arouse general interest in literacy, drama, and sports, followed by the daily work of a

corps of trained teachers. Nearly 1000 persons complete their course every three months. The experiment in Janata College near Delhi is another joint enterprise of the government of India and UNESCO. Here the work done in fundamental education is consolidated by selected villagers who receive 10 weeks' training in methods of improving sanitation, crops, health and other conditions in India. In Delhi city UNESCO this year established a municipal library designed especially to meet the needs, interests and abilities of the newly literate persons. Another project in Delhi, similar to those in Djakarta and elsewhere, has been that of interesting the common man and woman in science and in the scientific world in which one lives. In the field of natural sciences, three international meetings were held in India in the last six months. At present I am serving on the special committee of the Indian Federation of United Nations Associations which is holding a Southeast Asia Teachers' Seminar on "Teaching about U.N. in Schools." Countries especially invited are: Afghanistan, Burma, Ceylon, India, Indo-China, Indonesia, Malaya, Pakistan, Thailand, Iran and China.

This year has witnessed another forward step in the work of UNESCO—Germany and Japan have been readmitted officially to the professional family through active membership in the organization. While Russia still holds aloof from active participation, it has a standing invitation to cooperate with this international commission on educational energy. One of the chief characteristics of UNESCO is that it does not deal in secret diplomacy. The results of its educational research are available to all—there are no top secrets to be hidden or stolen. All nations share in the free-flow of findings, for education knows no geographical or political boundaries. It is an international clearing house and exchange service for the teaching profession. Facilitating this global task is the gradual removal of customs duties on books, works of art, music, scientific research instruments, and similar materials which are strategic to the teacher. UNESCO's International Book Coupons help educational materials to encircle the globe.

WOTP

Among the many other international commissions on educational energy, the second one lifted out for emphasis is the World Organization of the Teaching Profession (WOTP). This was organized in Glasgow, Scotland, in 1947. The constitution of this agency states:

> The purposes of this Organization shall be to secure world-wide cooperation among recognized organizations of teachers, in order
>
> 1. To make the highest standards of full and free education available to all without discrimination.
> 2. To improve the professional status of the teachers of the world and to promote their intellectual, material, social, and civic interests and rights.
> 3. To promote world-wide peace through the building of goodwill founded upon cooperation between nations in educational enterprises, based upon pertinent and accurate information.
> 4. To advise the appropriate organs of the United Nations and of other international bodies on educational and professional matters.

One of the many interesting and helpful features of this organization is that "any person who accepts the purposes of the Organization and who desires to contribute to these purposes, to receive publications, and to attend public sessions, etc.," can become an associate member. I have found in my trip around the world that this membership is a kind of professional passport. Recently the WOTP representative in Ceylon arranged a carefully planned, and professionally profitable lecture tour through that island. A chain reaction of personal and professional friendships is the direct result of this international commission on educational energy.

WOTP serves also in spheres larger than the personal. The basic membership consists of national educational organizations. Its fifth delegate assembly held in Valletta, Malta this summer had for its theme: "How national teachers organizations help their individual members to become more effective in their educational service and professional conduct." Internationally this organization has been recognized by the United Nations in an official consultative status to the Economic and Social Council under article 71 of the UN Charter. William G. Carr, secretary-general, states that WOTP is to UNESCO as the NEA is to the United States Office of Education. Due to the very restricted budget of WOTP its scope of activities is not as broad as UNESCO's, but as a non-governmental, voluntary association of teachers it has an important and unique role to play in unleashing educational energy internationally.

The Goal—One Educational World

Innumerable international societies, other than UNESCO and WOTP, serve as educational fraternities to further the common brotherhood of our teaching profession and the goal of one educational world. In the summer of 1950 I had the privilege of working for our State Department in Heidelberg, Germany, where the New Education Fellowship was founded in 1918 with the main purpose of making education "a force for improving the world order." In speaking in Bombay last month at a session of the Indian Section of the New Education Fellowship my presence was explained by the honorable secretary for India in the words of their printed constitution: "to bring together progressive educationists on a common platform for the discussion of common problems." Another world-wide professional organization is the International Association of Universities established in Nice, France, in December, 1950, "to provide a center of cooperation at the international level among universities and similar institutions of higher education of all countries as well as among organizations in the field of higher education generally." The Association has its headquarters in Paris with an International Universities Bureau serving as a permanent secretariat.

These world-wide professional organizations serve as conductors for transmitting educational energy from one country to another. We need more "educational outlets" to facilitate the flow of professional current. As an individual in an educational organization in the United States, a teacher can place his national membership in the larger context of one educational world. Teachers are a cooperative commonwealth. A total teacher of today and tomorrow must therefore be a cosmopolitan—a world citizen who is at home both in his own country and abroad—in an age of intellectual interdependence.

The second half of the twentieth century may well be known as "The Age of Educational Interdependence" or "The Era of One Educational World." International commissions on educational energy work toward this goal. The resistance to the ideal of one educational world is *great,* but the goal is *greater* than the obstacles, and the opportunity for achieving it is the *greatest* in the history of our profession.

TEACHING: A FIRST LINE OF DEFENSE

(Continued from Page 83)

Horace Mann in 1841 wrote:

"The common school is the greatest discovery ever made by man. In two grand, characteristic attributes, it is super-eminent above all others; first, in its universality;—for it is capacious enough to receive and cherish in its parental bosom every child that comes into the world; and, second, in the timeliness of the aid it proffers;—its early, seasonable supplies of counsel and guidance making security antedate danger. Other social organizations are curative and remedial; this is a preventive and antidote; they come to heal diseases and wounds; this, to make the physical and moral frame invulnerable to them."

And now in the midst of vigorous military rearmament we find encouragement from General Eisenhower and General Bradley who repeat the strong conviction that education so vital to long-range security must not be neglected.

The responsibility of the teacher, however, goes much beyond that of preparing children and youth as citizens. It is his responsibility to guide, direct, teach each individual so that his varied potentialities are given full fruition. Why cannot all men see that the strength of the nation is merely the sum of the strengths of the individual citizens? The technical skill, the profound insights, the broad knowledge this demands are understood by only a few laymen and by far too few teachers. When once these facts are known the professional status of the teacher will be assured.

There is a reawakening within the profession. That reawakening is centering, I believe, upon the whole question of analyzing carefully for the first time the true professional nature of the difficult task of teaching. This renaissance will, I believe, lead to the development of still better professional schools for teachers. It will mean the elimination of those schools which cannot or will not seriously provide the curricula, the laboratories, and the facilities necessary to carry on an adequate program for candidates seeking admission to the profession.

More than that, ours is the opportunity and obligation of establishing a new zeal for our public school system which is the foundation upon which stands any society of free men. Faith in one instills confidence in the other.

The Educational Use of Communication Tools

By PHILIP G. JOHNSON

★ *Philip G. Johnson is Specialist for Science, Office of Education, Federal Security Agency, Washington 25, D. C. He is a member of Phi Delta Kappa.*

EDUCATION is primarily a job of communication. However, all communication is not necessarily education even though the tools used may be much the same. Education presumes that humanity has discovered and confirmed certain ideas, skills, attitudes and other values that make life better for the person or persons who possess them than for the person or persons who have not learned them. The task of communicating the knowledge, customs and other values that a society approves plus the responsibility of selecting and adding the new and displacing the obsolete is the magnificent task of education.

The atomic bomb in a sudden burst may destroy a community together with its architecture, art, library, industry and people. It may implant fear and awe in millions of other people. But education made the bomb possible and furthermore education determines the uses to be made of the energy within the nuclei of atoms. Education may seem like a process too slow, tedious, and vague to win the race with forces leading toward destruction, chaos and fear. A survey of developments in the educational uses of communication tools should give a basis for hope that the educational process may be hastened and perfected sufficiently to win many important decisions and thus help to preserve and advance human civilization.

A Variety of Valuable Communication Tools Are Now Available

The use of mass media for communication represents but a wink of the eye within the time span since man appeared. At first man had to use vague sounds and signs for communication but modern man has made many visual and auditory symbols universal in significance and has produced ways to multiply and amplify sounds, signs and symbols.

For centuries man was taught only by living and breathing persons, but modern man has developed means whereby a teacher and teaching activities can be photographed in color and sound and then the lesson can be reproduced and the experience relived in thousands of classrooms by millions of persons. By the use of telephone circuits and radio waves, the learned person can have his teaching reach almost instantly throughout a nation and even around the world. Signals have been sent to the moon by radar and recorded on the rebound. Television now makes possible the reproduction of pictures and sounds over thousands of miles almost at the instant when they occur. While sound and picture recordings were awkward and unrealistic a mere 50 years ago, now even an amateur can record the spoken word and music by means of equipment contained in a small portable case, and activities can be recorded on film by a device held in one hand.

When we pause to recall the communication tools used by teachers thirty years ago—the blackboard and chalk, the books, the maps and pictures —with the tools available today, we can sense that education has found many new and useful communication tools.

Coupled with the modern communication tools of sound films, television, facsimile printing, oscilloscope, Geiger tubes, radio, radar, recordings, full color slides, mock-ups, page-size transparency projection, and the like must be included the time tested textbooks, reference books, chalkboard, flannelboard, charts, posters, graphs, specimens, models, experiments, field trips and excursions. We must also include lectures, dramatic presentations and forums. We can include the aquarium, terrarium and planetarium; the telescope, microscope, spectroscope, and stereoscope; the megaphone and the metronome; the thermometer, hygrometer, and speedometer; the photograph, barograph and the multigraph; as well as color print-

ings, etchings, drawings and paintings. Man has not only developed many new communication tools; he has also reached new levels of perfection in producing and using the older tools.

Educators today have access to an arsenal of potent communication tools which if used widely and wisely can help a civilization win in the race with forces leading toward chaos.

Communication Tools Are Positive Aids to Learning

During the recent war both the fighting man and the producing civilian used skills and knowledge gained in large part by observing and using sound-films, slides, mock-ups, models, and studying accompanying manuals. Films were produced to show people "how to do things" as distinguished from films that would show "how things were done." This change represented a milestone in producing films for purposes of education.

Films are now used extensively in business and industry for product production, sales promotion, and in training personnel to service equipment. Films, slides, recordings and television are used with rural groups and urban groups as well. Many church groups are expanding their use of modern communication tools in their religious education programs, in their evangelism, and in preparing leaders for a variety of services within the action program of the church. Insurance companies invest substantial funds in a variety of communication tools on the premise that this is a sound financial investment. Communication tools are socially acceptable; they are also educationally effective.

Science teachers have long had faith in the efficacy of communication tools. How else can youth develop skills in the use of equipment and insight into how devices operate except by actually handling and getting the feel of apparatus?

How else can interest in a process be kindled except by becoming a real participant in the process?

How else can scientific truth be appreciated and the work of scientists understood except by endeavoring to be junior scientists?

While demonstrations and audio-visual aids are accepted as valuable communication tools, there is a certainty among science education leaders that actual participation by pupils in experimental work is necessary if many important goals of science instruction are to be achieved. Read-about-talk-about science instruction is deplored by such leaders. Barren science teaching produces a disinterest in and lack of appreciation for science and mathematics at a time when there is a crucial national need for an increasing number of youth to seek careers in science, technology and engineering.

One vivid example of the effectiveness of new educational tools is to be found in the area of improvements in reading. Experiments indicate that by use of proper tools and procedures, reading can be accelerated two- or three-fold without any appreciable loss of comprehension.

Communication tools increase the rate and effectiveness of learning. The indispensable and key factor is the teacher who determines what tools to use, when to use them, and how they will be employed. We are faced with a triple problem of (1) providing the tools that can make a real contribution, (2) educating the teachers in the selection and use of appropriate tools, and (3) arranging a situation favorable for the effective use of communicaton tools.

$5.00 Per Year Per Student

Many educational leaders have recognized the first problems by establishing a budget item for purchasing equipment and renting films and other materials for use in the schools. Audio-visual leaders consider $3.00 per pupil per year a typical amount while $5.00 per pupil per year is a forward looking budget amount. These amounts are exclusive of funds needed for salaries and laboratory equipment. The amount needed will be determined in part by the amounts of equipment and supplies that have been purchased in recent years.

Train Teachers to Use Audio-Visual Aids

Many colleges, universities, and school systems have recognized the second problem dealing with the education of teachers by appointing one or more persons to direct and encourage the program of audio-visual aids to education. In some schools it has been made a part-time assignment of some staff member while in some schools it has been an extra assignment given to a regular full-time teacher. Serious consideration should be given the problem of providing leadership for

(Continued on Page 99)

Atomic Age Education in Science

By JAMES G. HARLOW

EDUCATION-WISE, are the atomic bomb and nuclear energy to be regarded as novae, as the points of origin of a new era in human life, as indications of the outmoding of educational concepts and social doctrines, as expressions of the arrival of the doomsday of our accepted ways of thought about science and science education? None of these is a proper approach to the evaluation of the educational meaning of the atomic bomb and nuclear energy. Rather, the chief educational meaning of the new control of nuclear energy lies in its emphasis, unusually dramatic, of an educational problem which has been with us for a long time.

The problem is the intellectual gap which has opened between scientists and lay personnel in our culture. The gap is expressed in several ways: in the popular identification of science with its objects instead of with both content and methods of inquiry; in the emergence of individuals and groups of unusual social and governmental authority; in the relatively unrecognized and unprotected dependence of the nation's economy, emphasized by the Report of the President's Scientific Research Board, upon a handful of experts in scientific fields; the rise of the authority of the word "science" itself, until it and words associated with it, such as "laboratory," have finally become important terms for the commercial advertiser in his development of effective distributional techniques; and of course by the extraordinary difficulty of communication between scientists and others—in fact, between scientists of one kind and scientists of any other kind.

The chasm is wide and deep. In the field of modern nuclear physics, it is maintained by highly developed mathematical techniques and complex experimental equipment which at first blush seems far beyond any possibility of general comprehension and understanding. The gulf seems impossible of bridging. But, if this gap really is the educational problem emphasized by the new nuclear energy devices, it is to its closure that educators must attend.

★ *James G. Harlow is Assistant Professor, Department of Physics, and Director, High School Science Service, University of Oklahoma, Norman, Oklahoma. He is a member of Phi Delta Kappa.*

PREDICTABLE GADGET

To use Robert Oppenheimer's words, in the *Life Magazine* report of a few years ago, the atomic bomb is a gadget. In fact, the products of science all are gadgets, expressions, if you wish, of the human activity which has come to be called science.

New products for human use are the predictable outcome of the science endeavor, though it is not always possible at any given time to foresee exactly the forms in which those new products will appear. It is largely the extraordinary success with which commercial enterprise has incorporated scientific development into its structure which has brought about the naive identification of science with new refrigerators, jet planes, and atomic bombs. In the case of the latter, military security was also an important factor in the identification process, for we were not subjected to the publicity which normally accompanies the "drawing board" stages of the development of a new device. We did not, for example, see the "artist's concept" of the new nuclear converter, as we see the "artist's concept" of the new jetliner or the automobile of the future. When the atom bomb appeared, it burst upon us with all the novelty, all the surprise, all the shock of an entirely new experience, one which was not even dimly suspected of being possible to us.

Yet, in fact, the atomic bomb was a predictable gadget; its building could not have been so expensively undertaken were it otherwise. Its origins lie easily identifiable in the new physics which began to develop in the closing years of the last century, and the possibilities of its development are clearly seen in the growth of understanding of nuclear physics in the years following that time. This is not to suggest that in

1900 it was possible to tell that an atomic bomb would one day be forthcoming, but rather to say that in the early 1900's, if one knew the nature of the scientific endeavor and some of the facts that were then available, it was possible to say that something would be forthcoming—in the human use sense—from this area of endeavor. In the field of science, then, the atomic bomb cannot be called a nova, though of course in the engineering sense it is a nova, for until quite recently nuclear energy could not be controlled for human ends.

These facts are readily available in the historical introductions of many of the textbooks available for use in modern physics classes at the intermediate level; the purpose of the presentation of the argument here is to sharpen the nature of the identification which has occurred—to the lay mind, the atomic bomb *is* modern science; modern science *is* the refrigerator, the internal combustion engine, the airplane and radar. The word science seems far better applied to the underlying human activity which produces these things. It is the richly human endeavor to find predictively useful relations, and once these relations are found, to turn them to the production of desired things.

We have not yet seen the end of startling gadgets; the existence of the activity we call science and its thoroughgoing incorporation into Western life are by themselves the guarantee of forthcoming events which may be even more earth-shaking, both figuratively and literally, than the atomic bomb. Thus the real educational meaning of the atomic bomb is that this scientific endeavor —the total activity called science—has again dramatically demonstrated its tremendous significance in the lives of all men.

The Democratic Principle

In a democratic social order, there can be but one educational conclusion from the formulation of the meaning of controllable nuclear energy in this form: that the essential elements of the scientific activity, conceived in the broad sense, be made the property of all the members of the social order. The chief educational problem emphasized—not posed—by the atomic bomb is the intellectual gap which has opened between scientists and lay people in our culture.

Monopoly of Knowledge?

One of the identifying features of this intellectual gulf and its consequences is the emergence of individuals and groups of unusual social and governmental authority.

We have only lately come from an age in which knowledge was the property of special groups. Particularly has knowledge been the special property of religious groups, in our not far distant past. The fresh intellectual air of experimental science was at the time of the Renaissance one of the largest forces in making knowledge public property.

Human beings seem to have a tremendous need for authority in their lives. All of us seek for someone to whom we can turn in time of need; all of us wish for an infallible source of wisdom. It is this need which makes so easy the integration of knowledge with human institutions, which causes monopolies of knowledge to grow up and to be accepted.

In a pre-war article, Bertrand Russell insisted that modern governments are becoming the heirs of the monopolistic movement in the field of human knowledge. Some of today's governments he calls new religions, and points out that they have their special creeds, their priesthoods, and their procedures for the persecution of non-believers.

John Dewey, in his *Problems of Men,* quotes Russell as follows:

> The rise of new religions in Russia and in Germany, equipped with new means of missionary activity provided by science, has again put the issue of intellectual freedom in doubt as it was at the beginning of the scientific epoch. . . . The threat to intellectual freedom is greater in our day than at any time since 1660, but it does not now come from the Christian churches. It comes from governments which, owing to the modern danger of chaos and anarchy, have succeeded to the sacrosanct character formerly belonging to the ecclesiastical authorities. . . . The newer religions are thus taking the place of Christianity, and are repeating the errors of which Christianity has repented.

In *The Revolt Against Science,* one of the essays in the book mentioned, Dewey discusses in some detail the problem of authority and institutionalization in human knowledge. He says, for example, that

> it would be a waste of time to argue that at the present time we are in the presence of a widespread revolt against science, for its presence is obvious in almost every field. In education, it takes the form of setting

> the humanities up against the sciences, accompanied with the clamorous assertion that all the ailments and failures . . . of the present school system . . . are the result of subordination of the humanities to the sciences. . . . Upon the side of theory, the attack rests upon calling the sciences materialistic, while literary subjects are identified with whatever is spiritual and idealistic in our traditions and institutions. . . . the attack upon science is now an attack upon the attitude, the standpoint, the methods which are science, with especial reference to their bearing upon human institutional problems, focusing on the supreme issue of who and what shall have authority to influence and to give direction to life.

Who is to have the authority for formal direction of human thought? Shall it be religion? It has been. Shall it be government? It has been, and in many areas of the world it now is. These are still substantially rhetorical questions for us in the United States, but this one is not: Shall scientists have the authority for formal direction of human thought?

To all of these, science as inquiry says no—a flat no. Perhaps the best way to exemplify this negative is through review of the apocryphal story of Galileo at the Leaning Tower of Pisa, and the two elements of the then-new inquiry which were emphasized there. These elements were the appeal to experience (the professors were asked to follow their observations) and publicness of result. Facts must be capable of demonstration, and must be demonstrable by all; there must be agreement on what is demonstrated. With such an approach to human knowledge maintained in any social order, no authoritarian approach can long survive, for everyone has access to knowledge, the knowledge which is power and strength.

There are currently available two striking examples of attempts to control scientific information: the attempt of the United States to maintain a monopoly of the atomic bomb, and the Russian attempt to substitute administrative order for scientific inquiry in biology, in the Lysenko case. The first is now known to have ended in failure, due in part at least to espionage. As was repeatedly insisted by scientists, the monopoly was never really possible. The end of the second attempt is not yet at hand. It cannot end otherwise than in failure, so long as nations other than Russia have access to scientific inquiry. The latter example demonstrates beautifully both Russell's and Dewey's observations: it is both an attack upon science and an instance of the movement of government into the sacrosanct fields formerly held by churches.

Inside our own country, the signs of the institutionalization of knowledge are not yet so clear and unmistakable. We have instead the emergence of authoritative individuals and groups. For example, one of the most authoritative of those groups is that of the nuclear physicists. This is one of the places at which the intellectual gulf between laymen and scientists is widest; therefore we see also the appearance of specially authoritative individuals, and we come to look to them for knowledge which we cannot validate ourselves.

Admittedly, this is at least in part a result of the specialization required of a research worker in today's science. But what of the future? Shall we continue to carry on a process which makes one group the custodian of knowledge so vital to everyone as nuclear energy? In short, shall we build a scientific oligarchy and turn ourselves over to it? It would seem that few things could be as unwise in a democracy as that! It isn't necessary to presume that nuclear physicists are power-mad psychopathic individuals to consider any oligarchy, scientific or otherwise, a bad thing; one needs only to note that authoritative persons soon begin to use their authority outside their special competencies to see the ease with which all human beings react undesirably to such power-full situations. This is the situation which has been facetiously described in the statement that the place of the expert is on tap, not on top.

One of the most important, if not the most important protection which the human race has developed against the over-authoritative institution is science as inquiry—not as product or content. If we as educators permit the continuance of the chasm, the gulf which we have been discussing, we may be guilty of bringing on more rapidly a new age of darkness, in which human knowledge belongs to dominant groups and individuals, and all others achieve their significance and usefulness from their relationships to those groups and individuals.

The crucial educational meaning of the atomic bomb is that science, as inquiry, has again shown its power in the lives of men. Responsible educational leadership must therefore move directly toward the closure, so far as is practicable, of the

gulf between today's scientists and today's citizenry in our democracy.

Three Things We Can Do

Three direct attacks upon the problem are available. The first, and most direct attack open to public school officers, is the development of effective in-service training programs in science education for elementary teachers, to support the growing interest in elementary science. Second is the improvement of pre-service training programs in elementary college science for elementary teachers. The third lies in the strengthening of the secondary school science programs, particularly in the physical science areas, where fresh, new approaches are indicated.

More science of the kinds now usually available in educational programs will not suffice to meet the need. What is needed is science which is not identified with content alone in the classroom—science which is for its learners truly a way of attack upon their own problems.

A science education program which provides a real attack on the problem emphasized by the atomic bomb must provide affirmative answers to these questions; else it will not close the gap:

Do your youngsters leave your science instruction with an appreciation of and a commitment to the democracy and intellectual freedom which is science?

Do they learn to weigh the evidence presented in discussions, and do they think of ways to make observations to help sharpen facts and reduce the emptiness of argument?

Do they leave you more scientific, if you please, than they were when they came to you?

Do your present classroom procedures help your youngsters to know that their economic lives are inextricably entangled with the progress of science? Are they aware of and in position to help to control the broadening and the application of the scientific endeavor into areas of their lives not yet touched by it? For them, are experts "on tap" instead of "on top"?

Atomic age education will provide positive, affirmative answers to these inquiries; through it will come a steady increase of independence of individuals in their knowledge. From it will devolve a continuing growth of the principle of individual worth as a motivating and organizing principle in the conduct of human affairs.

EDUCATIONAL USE OF TOOLS

(Continued from Page 95)

the program. The opportunities are important enough to warrant full-time or part-time service of persons who have been trained to sense and promote the values of communication tools.

Provide Facilities

Numerous schools and colleges have recognized the third problem concerning a favorable situation for using communication tools by establishing an audio-visual aids center and providing opaque curtains, acoustic treatment for ceilings and walls, tackboard and display space, adequate electric circuits, proper ventilation of classrooms and other facilities together with a functioning distribution service. In the plans for remodeling of schools and building of new schools thoughtful attention should be given to all facets of the educational use of communication tools. Provisions need to be made for active pupil participation.

A number of schools have an established school radio service whereby teachers can receive recorded and live presentations in their classrooms. Some school systems are exploring the possibilities of television as an educational aid.

Atomic Energy in Relation to Communication Tools

Among the modern developments that challenge educational leaders are the developments related to atomic energy. Here we have a problem of bringing new knowledge and understanding to all teachers who in turn can help educate the youth in the schools. Communication tools can help in this important process. While certain books and references should be purchased, most of the films and other instructional aids can be rented or prepared. A few colleges and several industries have pamphlets and charts available for distribution. There are numerous reference books and reports which can aid in the needed educational endeavors. One way to make progress is to appoint a special committee to explore ways and means for including atomic energy developments in the educational program. The educational possibilities are great as several school systems have discovered through study and exploratory programs. Through use of communication tools we can help build a better world.

Science Teaching and Education Aims Today

By ROBERT H. CARLETON

A FEW WEEKS AGO returning from a family vacation trip, we stopped off to visit several of my wife's high-school-days friends whom she had not seen for fifteen years. At each stop after half an hour or so of general talk, someone would inquire about her husband; and then it would come out that I was connected with an organization of science teachers. Time after time the response went something like this: "Science! I took some science in high school but I don't remember much about it. We cut up a frog in biology and I remember we had an explosion in the chemistry lab one day. But you know how it is; when you don't use the stuff you soon forget it."

Granted *my* friends would have reacted differently, it nevertheless seems to me that science teachers ought to be concerned about such attitudes among their former students. What have we been accomplishing through all these years with our science teaching? What will be the attitudes of our present students ten or fifteen years hence? Does the responsibility for science teaching rest only with the science teachers, or are there other school personnel who share the responsibility for the science education of our youth? Incidentally, let me say here that I am talking mainly about the secondary level. As for the elementary school level, I can do no better than recommend Blough and Huggett's *Methods and Activities in Elementary-School Science.*[1]

Science teachers today have heavier responsibilities than ever before in the development of conscience as to the use of scientific discoveries and inventions. Moreover, there is a concomitant impact upon all educational practices and subjects caused by scientific developments. Teachers of science and other subjects, their supervisors, the guidance counselors, the administrators, Boards of Education—all of us have responsibility to help in assuring far better science teaching than this nation has had to date. We *must* give attention to objectives. We must *know* what it is that we intend our students shall accomplish; and the students should know it, too.

★ *Robert H. Carleton is Executive Secretary, National Science Teachers Association, 1201 16th Street N. W., Washington 6, D. C. He is a member of Phi Delta Kappa.*

Turning specifically to the development of conscience objective, here are some views of the Educational Policies Commission.[2]

> A great and continuing purpose of education has been the development of moral and spiritual values. A system of moral and spiritual values is indispensible to group living. As social structures become more complex, as the welfare of all depends increasingly upon the cooperation of all, the need for common moral principles becomes more imperative. Especially in a society which cherishes the greatest possible degree of individual freedom, the allegiance of the individual to commonly approved moral standards is necessary. No social invention however ingenious, no improvements in government structure however prudent, no enactment of statutes and ordinances however lofty their aims, can produce a good and secure society if personal integrity, honesty, and self-discipline are lacking. (pp. 3-4.)

> By exploring and acknowledging the capacities of each child, education seeks to develop his creative powers, to encourage him to feel that he can do things of value, that he belongs, and that he is wanted. (p. 19.)

> The common welfare depends to a considerable degree on the extent to which we lift into positions of power and trust our most gifted and upright citizens. . . . In terms of education this value means a careful inventory of all the useful abilities of all young people. . . . It means that the highly gifted as well as the average or handicapped students need individual attention. (p. 25.)

> Some teachers become so engrossed in the task of teaching French verbs, or the proof of the binomial theorem, or the repair of internal combustion engines,

[1] Blough, Glenn O. and Huggett, Albert J., *Methods and Activities in Elementary-School Science.* The Dryden Press, 1951, New York City.

[2] Educational Policies Commission, *Moral and Spiritual Values in the Public Schools.* National Education Association, 1951, Washington, D. C.

that the moral and spiritual implications of their work escape attention. (p. 54.) . . . If all the teacher's questions require only facts to answer them, the students are likely to conclude that only facts are important. Questions which call for solutions to problems, interpretation of motives, weighing of consequences, making of comparisons, or the forming of judgments do more than help to teach usable information and skills. (p. 62.)

The organized subjects of the school can be vehicles for the development of values. However, it is important to avoid the fallacy of assuming that we learn some values in science, others in literature, and still others in the social studies . . . in every case we are striving for the understandings which will help give meaning and direction to our lives." (p. 64.)

Given such thoughts as these, to which there will certainly be little or no dissent, what are some bases for action as science teachers and other educators work together toward meeting *some* of the aims of education today through science teaching?

Industry Is Based on Science

First, we need to realize that it is the modern industrial state that produces the demands for better education, for better articulation and communication. There is crying need for greater recognition of the fact that the work of scientists, engineers, and inventors form the very foundation of the industrial state. The dearth of science courses in many programs for the education of elementary teachers and of secondary teachers in non-science fields, and the low requirements *in science* for the certification of science teachers, testify to our failure to recognize the historical role of science in the development of our western, industrialized society and the place of science in the scheme of things today.

There is no need to discuss "science for war or national security" on the one hand, and "science for peace and human welfare" on the other. The wellspring of both is the same. As L. A. DuBridge, president of the California Institute of Technology has said,

It is true that the kind of research which leads to uncovering new knowledge is not very different at first sight from the kind which applies this knowledge to the development of new devices, new weapons or new industrial techniques. But the assumption that because we are pouring a billion dollars a year or more into *applied research, therefore* pure science, the search for new knowledge to be applied, is also somehow thriving is the fatal misconception into which we are drifting. Actually pure science occupies an almost negligible place in our national thinking and in our national expenditures.[3]

We have not done a very good job in convincing people that in the field of atomic energy, for example, fundamental knowledge has been accumulating over a fifty-year span as the result of the efforts of hundreds of researchers in a dozen or more different countries, and that in the *application* of this knowledge today society can choose among atomic bombs, the production of genetic mutations that lead to better crops, the treatment of cancer, the clarification of our understanding of the role of reactants in a dynamic chemical system, and dozens of other useful applications. The atom bomb did not produce the problem of choosing between good or evil; it may have underscored the dilemma but the problem of choosing has always been with us.

Understand the Scientist

A second base for action is recognition of the need for a better understanding on the part of more of our citizens as to what kind of breed of cat the scientist is. After all, he lives just up the street from us. He does his work, plays bridge, enjoys music, has automobile accidents, etc. just like the rest of us. But—do we *really* know how he works? Who supports his research? Who gets the benefit of what he finds out? High school students will be interested in such questions. They *can* understand what we're talking about when we say that the freedom-loving nations, to survive, must be strong in science and industry. Only our scientists, engineers, inventors, and their kind can provide the fundamentals of such strength. In a manpower vs. manpower struggle with the forces of tyranny, the odds may be all against us. But right now our scientific and technical "know how" and our productive capacity give us definite superiority; it's our job to keep it that way.

However, the prospect of a continuing garrison state pleases no one in this country (I hope I haven't taken in too many persons). We must therefore sharpen the edge of our moral conscience to the end that we will work sincerely and with all our strength toward world peace and justice. The Educational Policies Commission has said:

[3] L. A. DuBridge, *Science and National Security*. California Institute of Technology, 1949, Pasadena.

> Precisely because we are in an age of peril we are also in an age of opportunity. In theory, at least, there are three possibilities; first, to give up the effort to teach values in the face of great difficulties; second, to try to return to the past by ignoring the facts of the industrial revolution; or finally, to equip this new generation with the insight and the will to live by moral and spiritual values.[4]

In his presidential address before the Oklahoma Academy of Science, Howard Taylor of Oklahoma College for Women pointed up the problem in these words:

> The deep concern about the social attitudes of scientists, both on the part of scientists themselves and by the general public, is due to several rather clearly discernible factors. In the first place, the exacting demands of scientific research have done much to narrow the view and interests of the scientist. In the search for truth, the scientist may become so engrossed in the pursuit of facts that the larger social implications of his work may, for the time being at least, elude him entirely. Pure science, with the search for truth as an end in itself, leads ultimately to another dichotomy, namely the separation of the scientist as a scientist from the scientist as a citizen. . . . Furthermore, it has become customary to personify science and to speak of the contributions and achievements of Science, rather than of those of scientists. This identification of science with the scientist has tended to minimize the moral and social responsibility of the pure scientist.[5]

Working toward such a goal is admittedly a ticklish proposition. The school's responsibility is to teach, but in this area for certain we *must* avoid authoritarian indoctrination. Moral responsibility cannot be wrapped up and delivered in capsule form, or as a "subject." Youngsters, and oldsters too, for that matter, need to consider many divergent ideas and points of view as they develop their own tentative conclusions and attitudes.

Secondary schools have much freedom to make curricular changes. Modifications in course requirements and alterations within courses, even of major proportions, can be accomplished. If carefully planned and carried out in a responsible way, such modifications in no way jeopardize the chances of the school's graduates being accepted for college or of their success as college students after they get there. Yet the number and kinds of things done in the name of "meeting college entrance requirements" continue to be a discouraging characteristic of all too many high schools.

What are some of the things we will actually *do* if we accept the preceding viewpoints?

1. *First, we will work more as an educational team than we have in the past.*

Administrators, supervisors, teachers of different subjects, and laymen too, will more often "get together" to work out solutions to educational problems. In one of our largest cities there is now pending a curriculum change simply "announced" by the superintendent's office. It would introduce one more term of social studies into the ninth grade program of all students and thereby eliminate an estimated 70 per cent of the pupils from general science. The science teachers, realizing that ninth grade science is the only exposure to science instruction at the secondary level for many of the youngsters, have questioned the educational wisdom of this move. Happily, the administration has agreed to a review of the case and it is expected that a mutually satisfactory solution will be worked out by a representative committee.

2. *The science teachers will drop some of the old to make way for some of the new.*

In biology we may have to spend less time on dissecting a grasshopper or an earthworm, or in learning (to what end?) the names of 20 local trees, if we hope to get across to students "what you should know about biological warfare," or the techniques of survival in the event of a catastrophe.

Many biology teachers will find time for a thorough excursion into the controversy between the geneticists and the "scientists" of the Lysenko school, and the implications of "dictated science."

We may have to omit the metallurgy of antimony, or other subject matter equally useless to young people, if in chemistry we hope to have time for consideration of new fuels, new drugs, and new plastics.

The physics teacher might better dwell at some length on rockets, jets, and turbojet engines at the expense of time formerly devoted to the stationary steam engine; and likewise with elementary nuclear physics, electronics, and a growing field of science which I believe is not touched upon in any of the current crop of physics textbooks, namely biophysics. High school students

[4] Ibid.; p. 12
[5] Howard Taylor, "The Social Responsibility of Scientists," *Proceedings Oklahoma Academy of Science*, 1951, Norman, Oklahoma.

usually take physics *after* having had the biology course. Should not the physics teacher accept some responsibility for bringing these two and possibly other courses together? The general science teacher's job is most difficult of all. His beat is all of science. How can there ever be a uniform, "standard" general science course—even from one school to another in at least our larger systems?

3. *Science teachers in meeting education aims today will make more use of community resources and resource persons.*

Field trips to the waterworks, the Board of Health, industrial establishments, observatories, glacial moraines and road cuts, and so on will be requested by the science teachers; they will be approved and even encouraged by the administrators and Boards of Education. Medical doctors, chemists, crime bureau identification experts, veterinarians, and dozens of other kinds of scientists will be invited to the school to talk and counsel with students, perhaps in class periods or to the school assembly, or more informally in the science club.

4. *Science teachers will make greater and more effective use of the wealth of supplementary materials even now available.*

It is regrettable that school librarians say that science teachers make far less use of the library facilities than their colleagues in English and social studies; but it is gratifying that science stands practically at the top of the list of students' preferences when it comes to browsing or reading just for fun.

Sponsored materials — booklets, charts, pictures, etc.—are available in generous quantities from many industrial sources and also from a number of research institutions, universities, and industrial agencies. Usually they are free for the asking or cost a few cents at the most. The National Science Teachers Association, for example, through its packet service has in less than four years distributed to its members over 150 different titles supplied by about 90 different sponsors.

Audio-visual aids will be used generously, but wisely, by the professionally alert science teachers. Films, filmstrips, transcriptions, TV, and other types of aids to learning will be employed.

5. *More and more laboratory work will mark our science teaching at every educational level.*

However, there may well be fewer and fewer of the traditional "experiments" that have characterized the conventional courses, particularly chemistry and physics, through the years. There will be more and more of the junior research type of laboratory activity. One boy in chemistry, for example, took as his "problem" a comparison of theoretical and actual yields in the reaction of lead nitrate with hydrochloric acid. Repeated wide discrepancies led to supplementary reading which brought out certain facts about the formation of complexions of lead in the presence of excess concentrated hydrochloric acid. This triggered a whole series of investigations on complexions which occupied the boy's laboratory time (and much "spare" time as well) for nearly two months. Meanwhile, he missed such standard experiments as "sulfur dioxide," "oxides of nitrogen," and "phosphorous." But his teacher didn't mind, and I for another wouldn't mind either.

6. *We may expect the growth of numerous "modified" courses in science.*

There is evidence to indicate a resurgence of the physical science course which had gained fairly widespread popularity before the war. Some schools are experimenting with biology in the ninth grade and physical science in the tenth grade with the upper years reserved for more specialized science offerings in chemistry, physics, advanced biology, electronics, etc. Related science is offered in many schools and is tied in closely with courses in homemaking and industrial arts.

7. *The "modification" of science courses will also involve closer working relations between the science department and other departments of the school.*

Why shouldn't the students get a taste of great literature (science literature, to be sure) in biology, or chemistry, or physics?

The painting of murals for the science room calls for cooperation with the art department.

Perhaps the social studies class provides a better setting for discussion of certain controversial issues in science than does the general science class. However, would we agree that we can not safely leave it all to social studies?

If we're going to discuss the oil situation in the Middle East, should we not know something

—in fact, considerable—about the world's needs and uses for energy and where the world's known energy resources are located?

Other similar examples could be cited. Perhaps social studies and science teachers, possibly others, should join forces in helping students become informed on where and how research goes on in university, industrial, and governmental centers; the role of foundations in supporting research; the Unesco programs; our government's Point Four program; and so on. The question is not whether we as adults, or whether large segments of the local population, approve of all these efforts. The question is: how can we help the young people of today, the voters of tomorrow, become informed so that they can make intelligent decisions? They will be the ones to determine in future years whether scientific endeavors are to flourish or wither.

8. *We can and should do a much better job in working with guidance counselors in tackling the job of trying to discover science-talented boys and girls.*

The job should be started during the junior high school years if possible, and then offer these potential scientists the kind of educational attention and opportunities their talents deserve. A frightening shortage of engineers and scientifically trained personnel is upon us this very moment. The high school of science idea which is so effectively demonstrated in the special school in New York City could be applied in nearly half the nation's high schools. There are high schools right now—some with enrollments as low as five or six hundred students—which have a "high school of science" group going through their courses. These students receive special attention of several kinds from their science and mathematics teachers.

Team Work Is Needed

The problem of gearing science teaching to education aims today calls for a coordinated, frontal attack by many of our educational personnel working as a team. It is not solely the science teacher's responsibility. Help and support are needed from the certification agencies in the states, from the teacher training institutions, from the administrative officers and Boards of Education of local school systems, and from the general public as well. There is need for better trained, more competent science teachers than ever before, but it's something like the old argument of heredity vs. environment. The science teacher may denote the maximum potential, but the principal, the superintendent, and the board of education usually make the decisions that provide or deny the environment conducive to the kind of science teaching we've been talking about. A board of education in one city disapproved a class of 13 in radio (explaining that 15 was the minimum requirement), but approved a class of eight in fourth-year Latin. About the only reason for the latter was that all these students had had third-year Latin.

Money Matters Too

If we are to get and hold the master teachers we need to do the kind of job called for by today's education aims, we must expect to offer appropriate salaries. Superintendents and Boards of Education ought to take the lead in demanding better teachers and should not hesitate to release the incompetent ones; at the same time, they ought to take the lead in making it financially possible for a man or woman to be able to afford to be a teacher. A young teacher in a nearby Maryland system was offered $2,600 in his third year of teaching. With a master's degree in chemistry, besides his professional education courses, he gave up teaching and went into the chemical industry at better than $4,000 a year to start.

The kind of science teaching we have been talking about *cannot avoid covering the fundamentals* of the various sciences. Moreover, certain areas such as earth science which are now almost totally ignored in the conventional courses will of necessity be brought back into the picture. Learnings growing out of such a program of instruction are almost certain to be functional in personal and socio-economic ways. However, we now have to take most of these beliefs on faith; we greatly need better evaluative instruments and procedures for testing our hypotheses concerning science teaching. Meanwhile, cooperative concern and planning for developing scientific literacy among *all* the students and for discovering and nurturing the science-talented group among them seem to be our best bets for reaching through science teaching many of the aims of education today.

Education for Human Rights In an Atomic Age

By JOHN W. TAYLOR and BETTY MORGAN

EDUCATION FOR HUMAN RIGHTS would be desirable in any age, atomic or otherwise. The whole trend of history up to now shows that it would have had to be carried out with increasing vigor and enlightenment even if the atom bomb had never been invented. What the release of atomic energy, with its vast potentialities for good and evil, has done, is simply to make us aware that this particular kind of education has become a first priority.

Now education is, in the nature of things, a slow process. Moreover, if decisions between peace and war have unfortunately to be made in the next few years, they will not be made by the generation at present in our school-rooms. If it were to come to a mere race against time, with no other factor intervening, the atom bomb would obviously win hands down. Nevertheless, this is no reason to postpone the vital task of creating the only long-term security against war and for peace that thinking men have yet been able to suggest. "Since wars begin *in the minds of men,*" says the opening sentence of the Constitution of Unesco, "it is in the minds of men that the defenses of peace must be constructed." In the building of these defenses there is not a moment to lose, and if we build properly they will grow progressively stronger as the years go by. Then time will be on our side instead of against us. It is in this sense that the pen has always been mightier than the sword and that the things of the spirit have survived the violence that sought to destroy them. Even in this perilous age, a supreme educational effort for peace may enable us to control events instead of letting them control us.

Education for peace is indeed the whole purpose of Unesco. It is now six years since the Organization was founded. At first, in trying to get its feet on the ground, it had to grope its way through a bewildering multitude of ideas and projects, all aimed, in varying ways, toward fulfilling its main objective. It was not until the Universal Declaration of Human Rights was proclaimed by the General Assembly of the United Nations on December 10th, 1948, that Unesco was fully aware of its great mission. It realized, and concentrated its energies and programmes more and more upon the fact, that the Universal Declaration of Human Rights is the solid basis upon which it must build in every department of its work.

★ *John W. Taylor is Deputy Director-General, the United Nations Educational, Scientific, and Cultural Organization, 19 Avenue Kléber, Paris 16, France. He is a member of Phi Delta Kappa. Betty Morgan is Executive Officer, office of the Director-General of UNESCO, Paris, France.*

Both the Charter of the United Nations and the Constitution of Unesco, for historical reasons of the first importance, give a very prominent place to human rights. They are mentioned in the Preamble to the United Nations Charter and in six different Articles. Article I of the Constitution of Unesco makes special reference to them:

> The purpose of the Organization is to contribute to peace and security by promoting collaboration among the nations through education, science and culture in order to further universal respect for justice, for the rule of law and for the human rights and fundamental freedoms which are affirmed for the peoples of the world, without distinction of race, sex, language or religion, by the Charter of the United Nations.

This insistence upon human rights is no accident. It rose directly out of the searing experience of the Second World War.

When the war ended—and it was a moment whose depth of insight and strength of feeling we should try to preserve in its integrity—men of all nationalities and of very varied religious and political convictions recognized and proclaimed that the denial of ordinary human rights and freedoms had been a basic cause of the war through which they had just passed, and would probably be the basic cause of any future war. It was therefore vital to protect these rights and

freedoms and to incorporate them in national laws and constitutions, finally giving them the ultimate sanction of an International Bill of Human Rights, to be followed by a Convention legally binding on the Governments who sign it, and by Measures of Implementation to ensure that the rights are really granted.

Unesco's concern for Human Rights is twofold. In the first place, it is directly concerned to prepare the ground for the acceptance by its Member States of the rights relating to education, science and culture, under the terms of its Constitution. In this category come the right to free education in the elementary and fundamental stages, the right to participate in the cultural life of the community, and the right to enjoy the arts and to share in scientific advancement and its benefits.

But secondly, and more relevant to our present discussion, Unesco is specifically concerned with a special resolution of the General Assembly of the United Nations following the acceptance of the Universal Declaration, which

> recommends Governments of Member States to show their adherence to Article 56 of the Charter of the United Nations by using every means within their power solemnly to publicize the text of the Declaration and to cause it to be disseminated, displayed, read and expounded principally in schools and other educational institutions without distinction based on the political status of countries or territories.

It is also bound to pay special attention to Article 26 (ii) of the Declaration itself, which lays it down that

> education shall be directed to the full development of the human personality, and to the strengthening of respect for human rights and fundamental freedoms. It shall promote understanding, tolerance and friendship among all nations, racial or religious groups, and shall further the activities of the United Nations for the maintenance of peace.

These two paragraphs govern Unesco's activities in encouraging teaching about Human Rights, whether we are tackling the problem from the point of view of the teacher or from that of the pupil, or are making suggestions for ways in which local administrators, too, can help towards the same end.

When we are considering how teachers should undertake the not at all simple task of making their pupils vitally and permanently interested in human rights, we must begin by recognizing that it is much more a matter of creating attitudes of mind than of giving routine instruction about the various Articles of the Universal Declaration and historical details connected with them.

The Declaration is really a statement of ideal human behaviour, in which the rights and duties which a man accepts as his own are exactly balanced by the corresponding rights and duties of the other individuals with whom he lives in society. There is a sense in which human rights may be said to begin at home, and in proportion as children develop fully and harmoniously in their earliest environment they will grow into satisfactory members of the school community, then into useful inhabitants of their own country, and finally into enlightened citizens of the world.

If we really believe in human rights, we shall teach our children at school, from their earliest years, not merely the fundamentals of education, but also to respect the rights, the dignity, the welfare, and the opinions of others; to cultivate a sense of personal value and responsibility, the better to understand the value and responsibilities of their neighbours; to think for themselves; to love justice and uphold the law; to see things as they are without the distortion of bias and propaganda; and to make easy social contacts with children from very different economic, racial, and political environments.

This means that in teacher education, the emphasis must continue to shift from subject-teaching to the needs of the child, which are social, physical, and emotional, as well as intellectual. The trained observation of children at work and at play, and a greater regard for the social studies in general, can help the teacher to create in his pupils a natural willingness to accept the idea and the practice of human solidarity upon which alone a peaceful world order based on justice and international co-operation can be founded.

Some kind of teaching about human rights can begin as soon as the child comes to school, by instilling a spirit of friendliness and co-operation towards other children, by telling stories and singing songs about the children of other lands, represented not as strangers and aliens, but as members of the same colourful human family. As the child grows older, the teaching of human rights can become more defined and concrete, based on the study of civics, history, geography, science, literature, and foreign languages. In its

final stage, teaching about the Declaration reaches its most abstract form, dealing with the philosophical and moral principles upon which the Articles are based.

But in all branches of the teaching, two things are necessary: free and full discussion, without which no good citizen can ever be made, and a realization that the Declaration is above all a human document born of actual human needs and suffering, and answering to deeply human aspirations towards the good life.

At all stages, too, out-of-school activities are important, both for the teacher and for the pupil. Far too often, the teacher tends to live too much with the children in his school and not enough with the adult community around him, although few members of society are better equipped to give and take in the ordinary relationships of adult life than the born teacher. The child, for his part, learns out of school that there is a wider world in which, too, he has rights and duties, but where he is thrown more upon his own resources and must find a way, adventurously, to his own adulthood.

These are the simple basic principles which must underlie all successful teaching about human rights from the primary school to the university, but they will of course need to be aided and supplemented by skilled techniques of instruction about which, at present, we have almost everything to learn. It is in this field that the United Nations and Unesco are carrying out pioneer work of considerable interest.

Until now, no real attempt has ever been made to propagate the idea of human rights throughout the world, so that our common civilization may have a common faith in freedom and justice and a common code of social behaviour. But the universal character of the Declaration, differentiating it from all earlier declarations of the rights of man, makes this world-wide approach to the problem absolutely necessary if the Declaration is to become in reality, as it proclaims itself to be, "a common standard of achievement for all peoples of all nations" and for "all human beings without distinction of race, colour, sex, language, religion, political or other opinions, national or social origin, property, birth, or other status." Nevertheless, different countries will achieve human rights in different ways, according to their traditions and the present state of their economic and social development. The materials provided by the United Nations and Unesco, and the proposals they make for teaching techniques, must therefore be adapted to the particular requirements of each Member State.

For this reason, Unesco is organizing in 1952 a seminar at which primary and secondary school teachers and members of the staffs of training colleges from its sixty-four Member States will be invited to discuss in detail active methods for education in world citizenship, especially in relation to the principles of the Declaration of Human Rights. In preparation for this seminar, which will be an important landmark in the work of Unesco, five international teachers' organizations are making surveys of programmes and methods of teaching about Human Rights actually being carried out by Member States at the present time. Each organization is conducting its survey independently of the others, covering the levels of education in the particular countries where it operates. In countries not covered by the international teachers' organizations, the National Commissions of Unesco are being asked to undertake the job. The surveys aim at gathering information on a wide variety of points, principally the following:

> What is being done to include teaching about Human Rights in the courses of study contained in typical curricula.
>
> The kind of information about Human Rights given to pupils in their courses of study.
>
> Extra-curricula and social activities and special projects which deal with Human Rights, (e.g., current affairs clubs, debating clubs, international relations clubs, youth clubs, etc.)
>
> The atmosphere and social life of the school and the effect of these on the understanding and observance of Human Rights.
>
> Teaching and other materials now in use.
>
> Teaching and other materials needed.
>
> The training of teachers for education about Human Rights.
>
> The attitude of teachers and pupils towards education about Human Rights.
>
> Factors of resistance to education about Human Rights and possibilities for overcoming them.
>
> Whether any attempt is made to draw together the incidental teaching about Human Rights given in a number of subjects so that it forms a coherent pattern.
>
> At what age levels teaching about Human Rights can be appropriately introduced.

Even at this early stage, it is possible to fore-

see that one of the most important subjects the seminar will have to discuss is the contribution which the organization of school life can make to an understanding of Human Rights.

Teachers' Guide

Partly to help along these surveys, and partly as a general aid to teachers everywhere, Unesco is also arranging to publish this Autumn a Teachers' Guide to the Universal Declaration of Human Rights. This Guide will explain the implications of the Declaration, the circumstances in which it was drafted, the responsibilities laid upon teachers by Articles 26 and 27 of the Declaration, suggestions for teaching about Human Rights, and for out-of-school activities.

The Problem Approach

The Guide will contain fifteen episodes drawn from world history and literature, showing how various categories of rights came to be won, since the author suggests that one of the most effective methods of introducing the Articles to a class, and to arouse discussion on them, would be through a short opening episode which could be read aloud or acted in ten minutes or so, vividly illustrating a state of affairs where a certain right was denied to the people or where the people were engaged in a struggle to achieve it.

A selection of basic documents on Human Rights, with introduction and commentaries, intended to serve as a work of general reference for teachers, students and serious readers among the general public, is now in preparation and will be published by Unesco in 1952.

Both the United Nations Organization and Unesco have also prepared and distributed a series of films, film-strips, posters, discussion guides and other materials suitable for use in schools. Last year Unesco brought out an Exhibition Album on Human Rights—a collection of documents and pictures illustrating the conquest of human rights throughout the course of history, for display in schools, clubs, libraries, museums, etc. The album contains a booklet entitled "A Short History of Human Rights," more than a hundred illustrated sheets, a large poster giving the official text of the Universal Declaration, and printed captions. It has been issued in English, French, and Spanish.

A new idea for this year is to prepare kits of materials issued by the United Nations and Unesco on the teaching of Human Rights, and send them to teacher-training institutions in the early Autumn.

At all times the professional consultative services of both UN and Unesco secretariats are at the disposal of Member States wishing to produce their own materials for teaching about Human Rights. The United Nations Organization runs a special lecture service at its New York Headquarters, where members of the Commission on Human Rights, of the Secretariat, and of consultant non-governmental organizations lecture to parties from schools and universities.

Altogether, up to the summer of this year, the United Nations had sent out materials on Human Rights to education centers and voluntary organizations in sixty-six countries and territories, and to teachers' seminars in Chile, Cuba, Iran, Italy, and the United States.

Observe December 10

Finally, both Unesco and the United Nations are doing their utmost to promote Human Rights Days or Weeks, to commemorate the anniversary of the adoption of the Universal Declaration by the General Assembly of the United Nations on December 10, 1948. This is an occasion on which the schools and the civic authorities, the teachers and the local administrators, together with local religious, political, professional, social and youth organizations, can work together to draw up a programme, or arrange a single joint ceremony, which will fix this day, its meaning and its purpose, in the minds of citizens young and old, and help them to understand that the universal acceptance of the Universal Declaration does indeed represent the best hope any of us could entertain for a peaceful and secure world for our generation and the generations who come after us.

If it is asked by those—and it should be all of us—who bear a part in this struggle for the achievement of human rights on a universal scale, whether our individual efforts are significant, the best reply is to quote the considered view of the General Assembly of the United Nations at its first session in 1946:

> The United Nations cannot achieve the purposes for which it has been created unless the peoples of the world are fully informed of its aims and activities.

You can help inform the people of the world!

"The Proper Study of Man"

By GORDON CLAY GODBEY

What is the atomic bomb that we are so concerned with it? Mustering our facts, we find little that is new. We find old principles, concepts, and elements united in a different form. The atomic bomb is a weapon, and weapons are not new.

This bomb has significance for all men, particularly city-dwellers, but generically there is no difference between bomb and cross-bow. Each new major weapon has had its effect, and been retired into the museum.

For us who uneasily inhabit this portion of history, it is cold comfort to realize that modern weapons kill no more for their time than did the spear or arrow. What we seek to control is not the weapon, but the hand that rises in anger to threaten us.

In looking behind the symbolic atomic bomb, seeking causes, we might best go into the metaphor by a detour. When we use the term *education* we mean at once much and little. There are several legitimate meanings, only one of which we should use in this discussion. This is the most general meaning, which involves all of the behavior of the organism. This, naturally, rules out the formally organized experiences called "schooling," as the total of education. Thus the man who lives nearly naked, hunting his own food day by day in the tropical rain forest, has an education.

With this definition of education, we at once see that the atomic bomb is one small bit of man's education. The search for, building of, use of this weapon, and the search for its antidote are parts of many educations. There will be, of course, different learnings or reenforced behaviors for the physicians who study the effects of the bomb on the survivors at Hiroshima, and the survivors themselves. But all are parts of education.

We should also recognize that education has had for years several forces more powerful than the bomb. In total force on human behavior, the music of Tchaikovsky, or Mozart; the writings of Kant, or Marx; the teachings of Buddha, or Jesus far outreach the puny, senseless explosion.

★ *Gordon Clay Godbey is Assistant in University Extension, University of Kentucky, Lexington, Kentucky. He is a member of Phi Delta Kappa.*

But with all their powers music, philosophy, religion and schooling have not yet provided the antidote for the behavior which threatens us —aggression.

Music has often glorified war. It has failed to consciously produce organized effort to affect behavior which make war impossible. Perhaps it is too much to suggest that this could have been done, but it could have been aspired to.

Philosophy, religion, and schooling have fallen into the ways of those who buy and sell, seeking first for themselves. These monumental forces for creating peaceful behavior have become formalized, ritualized, the special interests of special people. The religions have worked at peace with the left hand. The schools which produced the technology to split the atom have not produced any organized force to create peaceful behavior.

The introduction to the UNESCO charter begins, "Since wars begin in the minds of men, it is in the minds of men that the defenses of peace must be laid." We may properly paraphrase this to read, "Since wars are undesirable human behavior, an end to wars lies in changed human behavior."

As members of one of the educating agencies, professional teachers may well consider what they can do to help effect the changes in behavior which are required to end the aggressive behavior which made and used the atomic bomb.

In the taking stock, we must admit to several difficulties. We teachers have never been primarily concerned with behavior. We have too often considered education as a thing which one might possess, as one possesses a book. And we have sought to give education as one might books.

(Continued on Page 112)

Character in the Atomic Age

By HANOR A. WEBB

IT'S AN OFT-TOLD STORY—a poor man finds a pot of gold. What happens next? Will the man become the master, or the slave, of his new wealth? As the days and weeks go by, will the effects on his wife and children be for better or for worse? A decade later, will the memory of the discovery bring pleasure or remorse?

The various answers to these questions may be summed up in a single, simple phrase: the *character* of the man, and of his wife, will determine the good or evil that his sudden fortune brings.

Human society has just discovered a new treasure—atomic energy. This discovery was spurred by war, and its first use was revolting. What happens now? Will the new power favor progress toward a finer civilization, or prolong certain current depravities of our society?

Let us be specific, for at least three aspects.

1. A prodigious power is newly available from the hearts of atoms. Released suddenly, it explodes as the atomic bomb—a device becoming more and more destructive as experiments go on. Released slowly it becomes a new source of generated energy for industry, the developments promising big atomic piles for factories, and little piles for ships.

How is atomic energy to be used? Will the planners for war corner the supplies of uranium, both in Northern Canada and Eastern Russia, for their matched weapons of wholesale destruction? Or will this uranium further emancipate mankind from drudgery—as new sources of power have done throughout history?

The answer lies in the *character* of those who find it possible to lead—or drive—masses of men today, and in the character of their successors.

2. A penetrating radiation from atoms has been discovered that will pierce the deepest organs of the human body. In lethal strength it will blister the internal tissues until a horrible death ensues. In controlled weakness it is beneficial and stimulating, offering even the hope that cancer —the dread destroyer of comfort and of life— may be conquered.

★ *Hanor A. Webb is Professor of Teaching of Chemistry and General Science, George Peabody College for Teachers, Nashville, Tennessee. He is a member of Phi Delta Kappa.*

Is this radiation to be used in burning our enemies or healing our friends? The answer lies in the *character* of the political and economic leaders of the world's powerful nations. Whether we rain a dew of death over a foreign countryside, or equip our neighborhood hospitals with the new radiations, depends on how well human character learns to rise above the blood-lusts of the ages.

3. A new research tool—the radioactive chemical elements—now permits a deeper probing into nature's mysteries than man ever imagined would be possible. The isotope C-14—"hot carbon"—allows the dating of the most ancient relics of prehistoric man, and the age of any tree, living or dead. "Hot phosphorus" shows the course of a fertilizer into each plant tissue that it nourishes. "Hot iodine" traces the progress of a drug into such human tissue as it selects. How metals wear, how rubber stretches, how oil lubricates, how dyes color—these are but a few of the ever-lengthening list of investigations made possible by use of the radioelements. "With these new tools" one scientist has said, "we come close to solving the mystery of life itself."

What course shall future radioatomic research take? The answer lies in the *character* of those who sponsor it. The specialists in radioactivity would prefer to apply their skill to investigations clearly aimed at the goals of a higher civilization. But "they who live by the sword" spare no expense to sharpen their weapons, hence for the present the research on nuclear radiation is chiefly supported by our military forces. A realist admits that as we prepare for defense and offense against our enemies, these enemies are surely preparing for offense and defense against us.

In the past an invention's effects on human society usually developed in a natural, and hence a deliberate, way. This writer, born a decade after

the electric lamp was devised, was grown before these lamps were in his home. He first rode in an auto a decade after he first saw one, and another decade passed before he owned one. Our passenger airplanes have been almost fifty years growing to their present size and speed.

Such a time lag between discovery and use is not possible with atomic energy. Delay is dangerous! If the forces for good do not capture and contain this power, the forces for evil will! If a leadership seeking the betterment of all mankind is not developed and united in many nations, a leadership for the enslavement of mankind will prevail. As of today and of tomorrow, Destiny is jet-propelled!

It is clear that a world-wide development of character—in leaders and followers—is the only hope for a true era of peace and prosperity. A modest person, such as a teacher, stands appalled at the ratio between his lone self and the masses of society that must be moved in the right direction. But the teacher is likely to be somewhat of a philosopher. He knows that character—like charity—begins at home. "Indeed," he will say, "character begins with me!"

The Will to Peace

He knows, too, that the will to peace throughout the world should start now, no matter how long its full achievement may be delayed. Therefore he will do his honest best to teach character to every child who is entrusted to him. He will select, and stress, the character-training potentials of every subject he presents. In reading, his pupils may learn that they should speak and write the truth. Arithmetic may emphasize honesty. History may point out the high character of patriots, and the low morals of traitors. Science will surely teach the lesson of law and order, and point the path toward critical thinking—a power all men of character must possess. And, if the teacher himself is reverent, science may help the learner to glorify God as His handiwork is studied.

Emerson, in describing The American Scholar, said: "Character is higher than intellect. . . . A great soul will be strong to live as well as to think." No teacher will be satisfied with the intellectual improvement alone of his classes. He will strive to get responses that show developing character in each boy and girl. Realizing that all human improvement moves outward from within, he will not be satisfied with mere surface responses, as from rote memory or shallow comprehension.

The good teacher remembers the wise comment of John Ruskin: "Education does not mean teaching people to know what they do not know; it means teaching them to behave as they do not behave." He will therefore be less concerned with students' marks on tests than with their unfolding attitudes which, he knows, will affect their behavior far into their adult years.

Every teacher knows he is sowing seed. He knows that there should be a continuous harvest from every well-taught lesson. The better teachers are sure that human character is the chief harvest of their labors. Therefore the more alert among them are keeping fresh their information on atomic energy. They sense the challenge of this new power to them and to their instruction. They are training citizens of character to serve as leaders as the Atomic Age goes into its second and successive decades.

Realistic teachers have no hope of a millennium—an era of perfect peace—in the foreseeable future. They accept a goal much short of this ideal, believing that it is attainable in the lifetime of their own pupils. Such a well-taught pupil should become—in the words of a wise Scotchman, James Beattie—

> "Zealous, yet modest; innocent, though free;
> Patient of toil; serene amidst alarms;
> Inflexible in faith; invincible in arms."

The last phrase—"invincible in arms"—brings us again to the dilemma of the atomic bomb. We are faced by a prospective enemy, perhaps superior in military manpower to our allies and ourselves, ruled by dictators both ruthless and ambitious. Possibly only the fear of our new atomic weapon has held them in check; we are none too calm as to reports that they, too, possess this weapon. In these circumstances a discussion of the virtues of high character may seem a mere homily. Is there any way to hold to high ideals in the presence of this menace?

It is indeed hard to be an out-and-out pacifist these days. Yet belligerency has been tried continuously since the dawn of history, and has always sown the seed of more belligerency. Peace, even in the style of non-resistance, has won some

notable victories for society. Albert Einstein expressed it thus: "Peace can not be won by force. It can only be achieved by understanding."

Many believe that it should be possible for a capitalistic society and a communistic society, as economic ideologies, to tolerate each other, even with commerce and intercourse in the arts and sciences. It is not so certain that a zealously godless government would be a safe neighbor to a nation whose motto is "In God We Trust." But certainly if the brotherhood of man ever spreads over the planet, certain aspects of ethics based on true religion will be the basis of it.

Our nation's teachers, therefore, should stress the elements of high character as integral parts of each subject in the curriculum. They may expect a new generation of high-principled citizens as the harvest of their labors. They should hope that teachers in other lands may be motivated by the same desire, and may be permitted by their rulers to labor for the same harvest. If indeed this whole matter were left to the teachers of all nations, few would be the decades that passed before all men's good would be each man's desire.

It is a teacher's faith that this philosophy, typical of the highest human character, will ultimately prevail in human society. Then may Lord Tennyson's grand dream be fulfilled as he saw a planet truly fit for human habitation, where

". . . the war-drum throbbed no longer, and the battle flags were furl'd,

In the Parliament of man, the Federation of the world."

"THE PROPER STUDY OF MAN"

(Continued from Page 109)

We have considered that twelve years of schooling were enough for a lifetime, and that those twelve years should come at the beginning of a life. Just what the effects of the early years in school have been in later life, we have not been able to say. We have put our trust in ourselves, in what we could do with schooling (which we insist is education).

But these recognitions are not enough. If professional teachers wish to help formulate the antidote to the atomic bomb, we must merge forces with others who have similar interests. The central problem is better understanding of human behavior, and better control of it.

Who will take the lead in belling this cat? Professional teachers can. The approach must be international, through the United Nations. Other groups with peaceful behavior as a goal can join us, would join us if we take the lead. Consider the effect of a U. N. program for the study of behavior, if each member nation put in 10% of its total armament budget!

Schools could rebuild their curricula with the understanding of human behavior the chief object. This would not necessitate the complete abandonment of the present curricula, but what we do would have different meanings.

Further investigation into what schooling can do for adults may prove significant. We doubt, however, that traditional content and methods will hold much attraction for adults who are now beyond school authority. But we do believe that the increased number of older people warrant thoughtful consideration from teachers.

The antidote for the atomic bomb now appears to lie in compounding the powers of those major agencies which affect human behavior. No one agent can claim authority, nor reserve fields for its private investigation. None can claim that it has the only answer, the divine right over others. Each must give ground, effect compromises with the integrating agency. It may be foolhardy to expect such things to happen. It may be hopeless not to ask that it happen.

There are those who fear the understanding and control of human behavior. They might take comfort in the basis of the search—peaceful behavior among men. They might recognize that behavior is already controlled, and not too well, judging by some examples of it which make daily headlines.

The traditional approaches have done what in their day could be done. Change in one portion of human behavior demands change in other portions. For those who would hold to old ways, old values, we ask, "Will your values remain when humanity is reduced to scattered, frightened bands?"

This seems to be a choice between accepting wars and atomic bombs, or learning to control human behavior for mutual good in a world at peace. We will not accept hopelessness. We search for the antidote.

Materials Available

You want to teach about human rights? Then you will be interested in this list of teaching aids prepared by authors of the article on page 106.

MATERIALS AVAILABLE FOR TEACHING ABOUT HUMAN RIGHTS

I. *Materials available from the UNITED NATIONS.* Sales Section, Department of Public Information, United Nations, Lake Success, N. Y., or from Columbia University Press.

A. *Publications.*

1. Universal Declaration of Human Rights (official texts), in English, French, Spanish, Russian, Chinese ..... $ .10
2. United Nations Charter. Note especially the Preamble and Articles 1, 13, 55, 56, 62, 68 and 76 .10
3. Reports of the Commission on Human Rights to the Economic and Social Council:
   First session, Jan. 27-Feb. 10, 1947, Doc. E/259. 6 pages ..... .10
   Second session, Dec. 2-17, 1947. Doc. E/600. 59 pages. ..... .60
   Third session, May 24-June 18, 1948, Doc. E/800. 35 pages ..... .40
4. United Nations Bulletin. The issues of Nov. 1, Dec. 1 and 15, 1949, carry reports of the debate, article by article, in the Third Committee. The issue of July 1, 1949, contains a summary of the Human Rights Commission's deliberations on the Draft Convention during its Fifth Session. Also contains article by Mrs. Roosevelt and Dr. Charles Malik. Single copy .15
   Annual subscription 3.00
5. Yearbook on Human Rights. 1946. A compilation of declarations and bills of rights in force in various countries as of 31 Dec. 1946 ..... 5.00
6. Yearbook on Human Rights. 1947. Contains all constitutional provisions and legislative texts on human rights enacted during 1947, all such provisions included in international treaties that year, and a survey of United Nations activities in the field of Human Rights. 581 pages 6.00
7. "These Rights and Freedoms." An account of the work of the United Nations in the field of human rights including the adoption of the Universal Declaration, and the progress made towards the preparation of the Covenant of Human Rights. 214 pages 1.00
8. "Our Rights as Human Beings." Discussion guide. 31 pages ..... .10
9. Four pictorial posters in colour reproducing pictures and captions from the filmstrip "The Universal Declaration of Human Rights."

B. *Films and Filmstrips.*

1. "Of Human Rights." Documentary film. English only.
2. "The Universal Declaration of Human Rights. Filmstrip, 73 frames, designed for secondary schools and adult groups.

II. *Materials available from UNESCO.* (19, Avenue Kléber, Paris 16e).

A. *Publications.*

1. Exhibition Album Human Rights. Contains a 32-page brochure entitled "A Short History of Human Rights," 110 illustrated sheets, a large poster of the text of the Universal Declaration, and 35 sheets of explanatory captions ..... 3. 75.
2. "Human Rights." Comments and intepretations. A symposium edited by Unesco with an introduction by Jacques Maritain. New York, Columbia University Press. 1949 ..... 3. 75.
3. "Freedom and Culture." New York, Columbia University Press, 1951. 270 pages. Contains essays on the right to education, right to participate in culture, freedom of science, freedom of artistic and literary creation, freedom of information and copyright. Introduction by Julian Huxley..... 3. 75.
4. A Teacher's Guide to the Universal Declaration of Human Rights. To be published, Autumn 1951.

B. *Filmstrips.*

(on various aspects of Human Rights)

1. "Milestones."
2. "Abolition of Slavery."
3. "Emancipation of Women."
4. "Freedom of Thought."
5. The Right to Education."
6. "Arts and Life."

Each filmstrip has 30 frames. Commentaries to accompany the film strips are available in English, French, Spanish, German and Arabic.
Price for set of six filmstrips 3.00
For individual filmstrips ..... .50

Teach Abroad?

The 1952-1953 competition for Fulbright graduate study or research awards will close October 15, 1951. The following countries will receive students for the 1952-53 academic year:

Australia	Italy
Austria	Netherlands
Belgium & Luxembourg	New Zealand
Burma	Norway
Egypt	Pakistan
France	Philippines
Greece	Thailand
India	Turkey
Iran	United Kingdom

Application forms and information concerning the 1952-53 program have been sent to Fulbright Program Advisers at cooperating institutions. Applicants-at-large should request forms from the Institute of International Education, U. S. Student Program, 2 West 45th Street, New York 19, New York.

If you would like to teach in an elementary or secondary school for American children in other countries, write for information to the American Council on Education, American Schools Service, 1785 Massachusetts, Avenue, N. W., Washington 6, D. C.

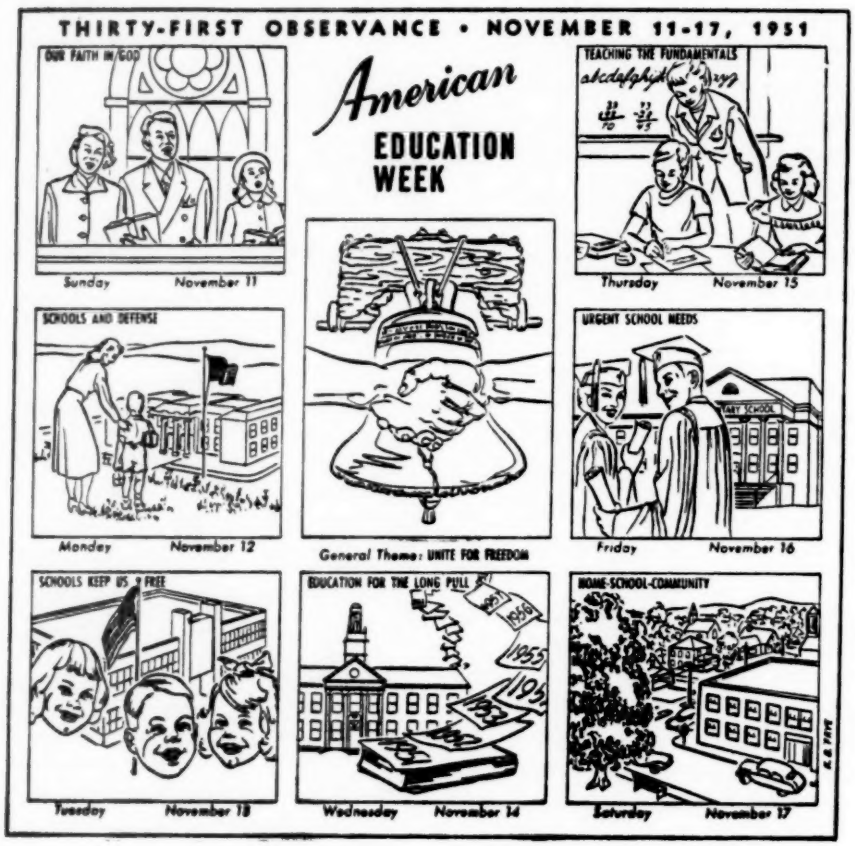
If you would like to teach in the elementary or secondary schools in some other country under the auspices of the school system of such a country, write for information to the United States Office of Education, Division of International Educational Relations, Federal Security Agency, Washington 25, D. C.

If you would like to do post-doctoral research under the Fulbright Act, write for information to the Conference Board of Associated Research Councils, Committee on International Exchange of Persons, 2101 Constitution Avenue, Washington 25, D. C.

Are you interested in teaching in Britain for a year? If you have five years of teaching experience, you may be eligible for the exchange program. For information, write Raymond Nelson, U. S. Office of Education, Federal Security Building, 3rd Street and Independence Avenue S. W., Washington, D. C.

Check Your Address Label. IS IT GREEN? If it is printed in green, your current year dues have not yet been received by the fraternity office. YOUR SUBSCRIPTION TO THE PHI DELTA KAPPAN HAS EXPIRED, and if dues are not received before December 1, you may not receive the January issue. REMIT TO YOUR CHAPTER NOW!

For materials to assist in observing American Education Week in November, write the National Education Association, 1201 16th St., N. W., Washington 6, D. C.



For a packet of selected materials to assist in the observance of American Educational Week send 60c to the National Education Association, 1201 Sixteenth Street, N. W., Washington 6, D. C.